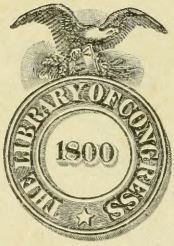
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HOW TO LAY OUT SUBURBAN HOME GROUNDS

HERBERT J. KELLAWAY



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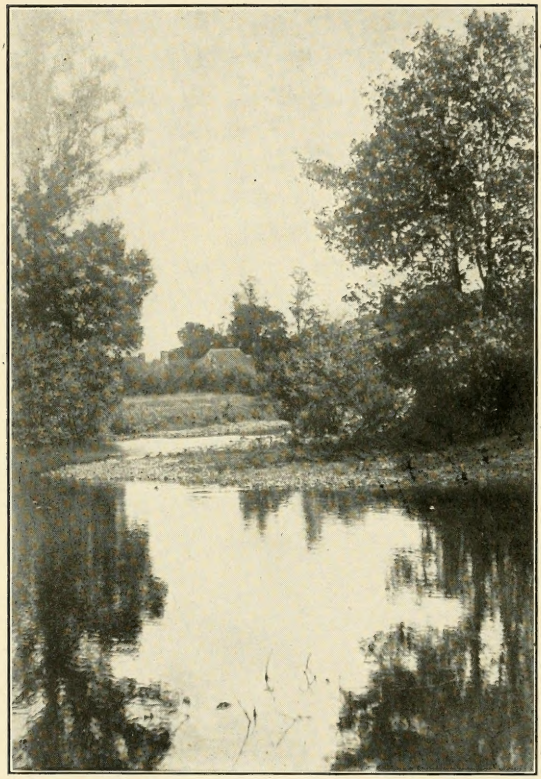


PLATE I. FRONTISPIECE.

A small quiet nook of a place nestled among trees, and carpeted with green around. And there a brook should murmur with a voice of outdoor happiness. — And, then, health in balm should come about my path and my mind be as a part of every fragrant thing that shone and grew around me. —DOUGLAS JERROLD.

HOW TO LAY OUT SUBURBAN HOME GROUNDS

BY

HERBERT J. KELLAWAY

LANDSCAPE ARCHITECT; F. A. S. L. A.

SECOND EDITION, ENLARGED

FIRST THOUSAND



NEW YORK

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PREFACE TO SECOND EDITION.

Landscape Architecture is to-day recognized as one of the fine arts. The application of this new art is becoming more universal as the days and years go by, not only in the large public and private undertakings, but even about the modern moderate home for which this work was especially written as an inspiration. That it has accomplished much in making the home surroundings beautiful is the best reason for the hope that this edition will be helpful

H. J. K.

Boston, Mass., February, 1915.

PREFACE TO FIRST EDITION.

Outdoor art is to-day recognized as necessary to the completion of a home. What are the best methods to pursue in designing small suburban grounds? As an assistance to those with moderate incomes wishing to secure beautiful surroundings, the following thoughts are written. They are not intended to deal with the treatment of large estates or explain the many principles of landscape architecture, but only as an incentive to good taste.

The need for planning and "counting the cost" before beginning the construction of the house is apparent. The problem should be treated as a whole, rather than to consider the grounds as an afterthought.

It is not my intention that the plans and sketches shown shall be designs to be carried out, but only as an example of what can be done. Every site presents conditions and opportunities which should be taken advantage of in the development. As every locality has plants that are indigenous to the region, it seems useless to merely give an extended list of trees and shrubs, but to direct the reader to a means of securing the knowledge in one's own community.

In the hope that many may be inspired to seek better things about the home this small work is sent forth.

Herbert J. Kellaway.

Boston, Mass., June, 1907.

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HOW TO LAY OUT SUBURBAN HOME GROUNDS.

WHAT artist so noble as he who, with far reaching conception of beauty and designing power, sketches the outlines, arranges the colors, and directs the shadows of a picture upon which nature shall be employed for generations before the work he has prepared for her hand shall realize his intentions.—FREDERICK LAW OLMSTED.

CHAPTER I.

> And a Man shall ever see, that when Ages grow to Civility and Elegance, Men come to build stately, sooner than to garden finely; as if Gardening were the Greater Perfection. — Francis Bacon.

THE first man, Adam, began life in Paradise, the garden of Eden. Is it too much to say that the home spirit is inborn; the love of home a force and the desire to own a home the crown of a man's ambition? The mystical ideal is ever present not in mere wood, stone, and land, but is clothed about with life. The memories of childhood days are of the living things, the home folk, the animals, the trees, the flowers. There is no deep attachment to inanimate objects unless embodied with the mystery of home life and spirit. Man wants a home. The delights of ownership and the responsibilities are subject to the same laws, whether it is the rich man in his palace or the poor man in his meagre cottage. The ability to realize and attain the ideal is limited by circumstances. Often the supposed excessive expense is in the imagination.

If the ideal were made tangible in the form of a well outlined plan of action and development the desired result would be secured. Without such plan not infrequently funds are spent in securing poor or second-class treatment of the home grounds.

Can the ideal be attained? Yes; perhaps not all at once, but little by little as funds permit. The scheme must be outlined and a determined and settled purpose will accomplish what was seemingly the unattainable. The house is usually the first thought. Instead the beginning should be on the ground, the location, quality, surroundings, and possibilities

for development. The adaptability of the site to secure the ideals of the home builder should be considered, whether it is a shrub embordered lawn, a flower garden, or natural or wild grounds. It is possible to create effects on almost any site, but every natural feature should be utilized. A home well begun is half done. Consideration should be given, besides the cost, to the "upkeep" or maintenance. The cheapest method of development and least cost for care is to have mostly lawn and shrubbery. The more details planned, such as arbors, terraces, and gardens, the greater will be the expense for keeping them in order. See Plates II, VIII, IX, and XX.

Moderate places can be kept in order as a morning and evening exercise to the busy city worker. If larger grounds are attempted it may be necessary to hire a man by the day occasionally or secure his services permanently. This expense can be found by inquiry as to prevailing rates. Another item of expense that should be thought of, is the purchase of fertilizers and materials for repairs.

It is a good idea not to attempt too much or plan beyond one's means or possible future income.

Often one sees a house occupying the larger portion of the grounds, built out of proportion to the size of the lot available. Such large houses give the idea of a one-sided life. It is an inside life, not broad and cheering as the home plot well developed can give.

The house is usually the first thought and where shall it be placed, it being a universal feeling that anyone can locate a house. The inexperienced usually determines the location of the grounds without serious consideration as to the location of the walks, drives, lawns, clothes drying yard, coal hole, or sufficient thought as to sunlight. A fine view is often the determining point. This, at first, may be inspiring to the owner and to the occasional visitor, but the effect of the views gradually wears away. Consideration of comfort, sunlight, and air are more lasting and need serious thought.



PLATE. II. House designed to harmonize with red cedars existing on the ground, showing good taste.



PLATE III. A well studied development of a suburban community, stepping stones in lawn lead to covered gate.

This method of procedure often involves the owner in much needless expense, whereas a far better result can be obtained by planning before beginning.

There is as much reason for planning the grounds as there is for planning the house. The position for the various departments, such as the front approach, the servants' approach, the laundry yard, the stable yard, flower garden, tennis court, lawn, location of trees and shrubs, and the grading should all be determined before beginning the work. Each department should bear its proper relation to the other.

No dream paper plan that is drawn to look pretty and pleasing will do, but one that is made to fit the ground, and to utilize all the available existing materials.

Emphasis is often laid upon the plants and planting. Greater stress should be put upon the design and arrangement. The ground must be shaped and developed right for the same reason that jewels merely adorn but do not make a woman beautiful. See Plates V and XXV.

In locating trees and shrubs simply bear in mind the present and future effect after the plants have grown to maturity. It is almost a truism that the composition which looks so simple and complete is the hardest to attain.

CHAPTER II.

Choose, then, between the masterpiece of gardening and the work of nature; between what is conventionally beautiful, and what is beautiful without rule. — Victor Hugo.

THE nature of man and his tastes may be expressed by the works he does or the choices he makes.

Expression may be given in the architectural or formal style of gardening, while others may be satisfied by the informal or natural style. Instead of clinging to one style there is often a desire to have both, a touch of the regular well kept lines with an opportunity to retreat to the easy flowing grace of the natural or wild treatment. See Plates XXVI and XXVII.

The choice of the site is important as providing opportunity for the realization of these desires. Often a site is chosen for no other reason than that a friend or neighbor will live next door.

Much expense and disappointment may be saved by considering a few of the following suggestive questions before purchasing.

Are the transportation facilities to and from business frequent and satisfactory?

How far distant are the schools, churches, physicians, and stores?

Are there proper regulations and provisions as to street lighting, care of the streets, and removal of offal and ashes?

Is there adequate provision for fire and police protection in the municipality?

What are the taxes and assessments of the municipality?

Is the street accepted and maintained by the town, or is it a private way to be maintained by and at the expense of the abutters.



PLATE IV. An example of good suburban development.



PLATE V. Winter effect. Even in winter shrubbery in masses is beautiful although barren of leaves.

Is the street if unaccepted as a public highway of the legal width?

What is the elevation of the district? Is it swampy or is the site subject to the drainage of adjoining land?

Are there stagnant pools in the neighborhood causing the breeding of mosquitoes?

Is the district healthy? Has it a reputation for malarial infections?

Has the site been filled with ashes and refuse making a poor foundation for the house or for the treatment of the ground?

Is there a good, pure water supply, and, if wells are to be depended upon, is there any drainage from neighboring cesspools or stables which is likely to contaminate the water?

Are there nuisances in the neighborhood such as piggeries or foul smelling factories?

If sewers are not in the vicinity, is the soil of such a character that proper cesspools can be built?

Is the neighborhood of such a character that the general trend of improvement will be upward?

What is the character of the soil and subsoil? Is it adaptable for either lawns, trees, shrubs, flower gardens, vegetable gardens, etc?

Are building materials available in the vicinity? — that the cost of building may not be excessive.

Are there restrictions as to the minimum cost and character of the buildings?

In well ordered communities on tracts of land that have been developed by a competent landscape architect, the location of the roads and the shape of the lots are determined so as to provide the best site for the house and development for each lot. A restriction line or building limit is placed upon the ground varying from 25 feet to 50 feet in width from the street line to secure a uniform arrangement of houses. See Plates III and IV.

On the side lines of the lot a restriction line from 10 to 25 feet is placed according to the size and character of the lot, so

that any structures in the form of barns or out buildings may not cut off the light or deteriorate the value of the next adjoining lot.

Other restrictions are often placed as to the character of buildings and the use of shrubbery, trees, or any incongruous objects which would be detrimental to the artistic development of the neighborhood. Well restricted land, other things being equal, is usually safe property to secure. Although the first cost for the land may be greater, the ultimate success can be reasonably assured.

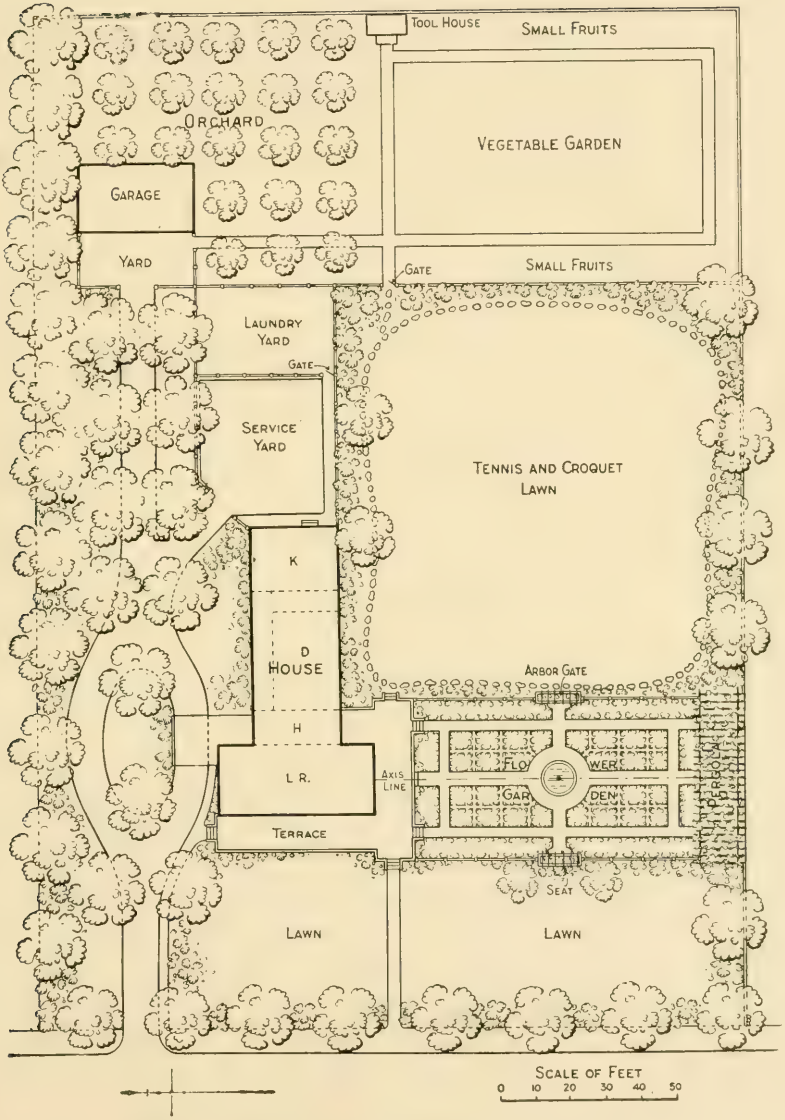
Is the lot situated so that the house and grounds will receive a maximum amount of sunshine? A southerly exposure is best.

Is the lot located so that the prevailing wind may be felt in the living rooms of the house? Usually the prevailing wind in summer is from the southwest. With this in mind the living rooms of the house should be placed with a southerly or westerly exposure. The kitchen can well be placed in the portion opposite to the prevailing wind that the odors may be carried away from the house. To obtain these benefits in special cases calls for special plans from an architect rather than a ready made plan.

A southerly exposure is also best for the treatment of the grounds or the building of a flower garden. But few plants can grow in the shade. See Plate XX and Plans I, V, and VIII.

Are the views, local or distant, satisfactory? The best views should be obtained if possible from the living rooms of the house. The local views of the prospective site may be charming, but the views of the distance may be of such a character as poor factories, stone quarries, barren cemeteries, stagnant pools, barns, etc., that they cannot be obliterated either by planting or by structural means.

In choosing the site some cheap land may be offered because the irregularities of the surface, the inaccessibility from the street, or the need for filling cause added expense. These lots



PLAN I. Preliminary plan for treatment of level open lot.
(Area about one acre.)

appear at first thought to be absolutely worthless because there is apparently no development possible upon the first investigation. Yet for the exception of the increased cost of development the lot is an acceptable one. These waste lots often give an opportunity for originality of treatment of homes that are unique.

CHAPTER III.

True art is expressive before it is beautiful at its height it is still the adornment of a service. — CHARLES ELIOT.

IN the choice of a home site the practical uses must not be overlooked. There must be reason and convenience in arrangement before the beautifying features are introduced. Notwithstanding the impression that art is not practical it is worthy of note, as keen observers will find, that in the works of the masters of the landscape art there is a simplicity that is charming, a convenience that is reasonable and direct. The practical utilities are made the means of expressing the beauties of art whether in beauty of line and direction, contour or shapeliness, or the disposition of the embellishments of trees and shrubs.

There is a prevalent idea that there must be a front yard and a back yard to every estate. The front is to be neat and well kept, while the back yard is neglected and considered waste space. See Plates VI and VII.

This notion is fast passing away and the desire for privacy has led to the development of the lawn or garden front. Instead of the refuse and offal boxes being scattered about the premises they are carefully placed in an inclosure near the kitchen entrance. See Plates XXIII and XXIV.

The practical adaptability of the house to the site is worthy of serious thought. Of the many types the level open lot is the easiest and cheapest to develop and almost any type of house is adaptable, as the whole surroundings are to be made. See Plans I and V.

The expense for grading will be light about the house, which is often an important item. The greatest disadvantage of an open lot is the necessity of waiting years for newly planted

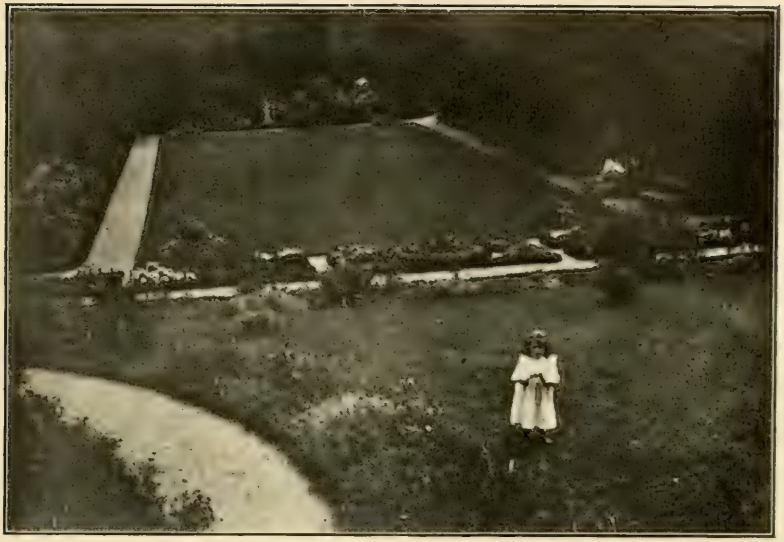


PLATE VI. Treatment of the "Back Yard" into a simple lawn and garden surrounded by flowering shrubs and herbaceous perennials.



PLATE VII. The rear of the house designed as a terrace garden with a sundial for central feature.

trees and shrubs to mature. If there are good trees existing on the land every effort should be made to save them. Often the only characteristic feature is one fine tree existing where the house usually would be set. The style and shape of the house should be studied that the tree may be saved and give emphasis to the home. Difficult conditions in the hand of the master will result in convenience and art combined. Too many house plans are made on paper without reference to the natural conditions of the ground, or the future development. See Plates II and XV.

Side hill lots are the most difficult to treat successfully. Ingenuity and often large expense is necessary to secure a convenient and artistic arrangement. For such lots the long narrow house is the best. This shape of house will avoid excessively high rear basement walls. See Plate XXI.

A free hand may be had in open hill side lots, but in wooded ones the problem is more difficult. It is usually desirable to save as many of the valuable existing trees as possible. Retaining walls may be needed to support the walks or driveways and to avoid filling against an especially fine tree.

In side hill lots there is the one with the land sloping upward from the street level and the land sloping downward.

On the land above, the immediate street front between the house and the street may be either sloped with graceful banks, terraced in earth and grassed, or walled. See Plate XXVI.

The land on the opposite side of the house, or rear, must be shaped so the surface drainage from the land above will be carried away from the house. If the land is not too steep the earth may be excavated and shaped so the water will collect in a hollow and run away at the sides of the house. If that is not possible a wall can be built with a catch basin in the lowest point connected with drains to remove the surface water. The house may be designed to fit the slope, stepping, in such a manner as to remove the buried effect so often seen in side hill work.

On the land below the street the house is usually placed high enough so the earth may be filled against the cellar wall and get a slight drainage for the surface water away from the building to the street. This leaves the opposite front or rear well out of ground, and often gives the house an appearance as if sliding off the hill. To obviate this effect a stone wall or earth terrace may be built broad enough to form a good foundation for the house to rest upon. If there is material enough available, the base may be broadened out and a natural treatment secured. This base gives opportunities for a terrace formal garden which may be viewed from the rooms of the house. From this level place, steps can lead down to the orchard or vegetable garden. See Plates XIX and XXI, and Plans I, VII, VIII, XII, and XV.

In exceedingly steep land it may be necessary to locate the house below the street grade. There should be ample space between the side line of the street and the house front to allow for shaping of the land so the surface water will be forced to run away from the house on either side, or the street may be held by a retaining wall and steps lead down to the house. In this latter case it will be necessary to use the catch basin and drain.

The down hill buried effect may be greatly relieved by a proper selection of plants.



PLATE VIII. Walled flower garden, street side, wisteria in full bloom.

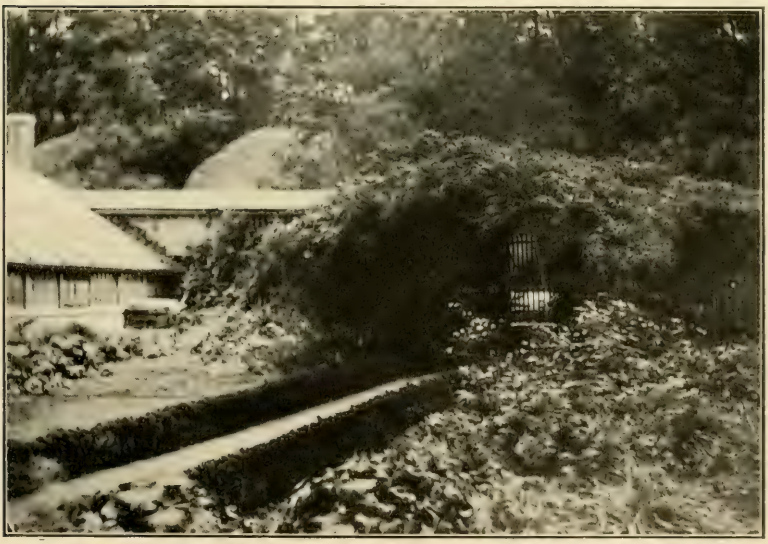


PLATE IX. Walled flower garden, inside looking towards gate, box bordered walk.

CHAPTER IV.

> Give a man the secure possession of a bleak rock, and he will turn it into a garden; give him a nine years' lease of a garden and he will convert it into a desert. — ARTHUR YOUNG.

WITH the purchase of the home site is deeded the satisfaction and responsibilities of ownership. Immediately the flights of imagination carry the home builder into dreams of possessing so many different desirable features that his mind becomes an enigma. The puzzle grows harder and there is less chance of a good solution as he walks about the plot. In imagination the house is to be here, and the drive there, with the flower garden at the side. Everything appears easy at first, then comes a consciousness that there must be a way to solve the mystery in a business-like straightforward manner.

The first step towards a solution is to make a survey plot or a topographical map of the ground to a convenient scale. Moderate sized lots can be measured by the ordinary method of a tape measure and 2 foot rule. The measurements taken can be plotted on a piece of drawing paper or, if that is not available, a common ordinary sheet of heavy brown wrapping paper. Make the drawing on a scale of $\frac{1}{8}$ inch to the foot, showing the position of the boundaries of the property, the location of any natural features such as trees, boulders, and shrubs which may be used in developing the grounds. Then if the ground slopes the use of a carpenter's level and a pole 10 feet in length will give the difference in the height of the ground approximately. To get the elevation set the carpenter's level firmly in a permanent place, make level and sight along the top of the level to the 10 foot pole held in the hands of an assistant, then by measurement the difference between the

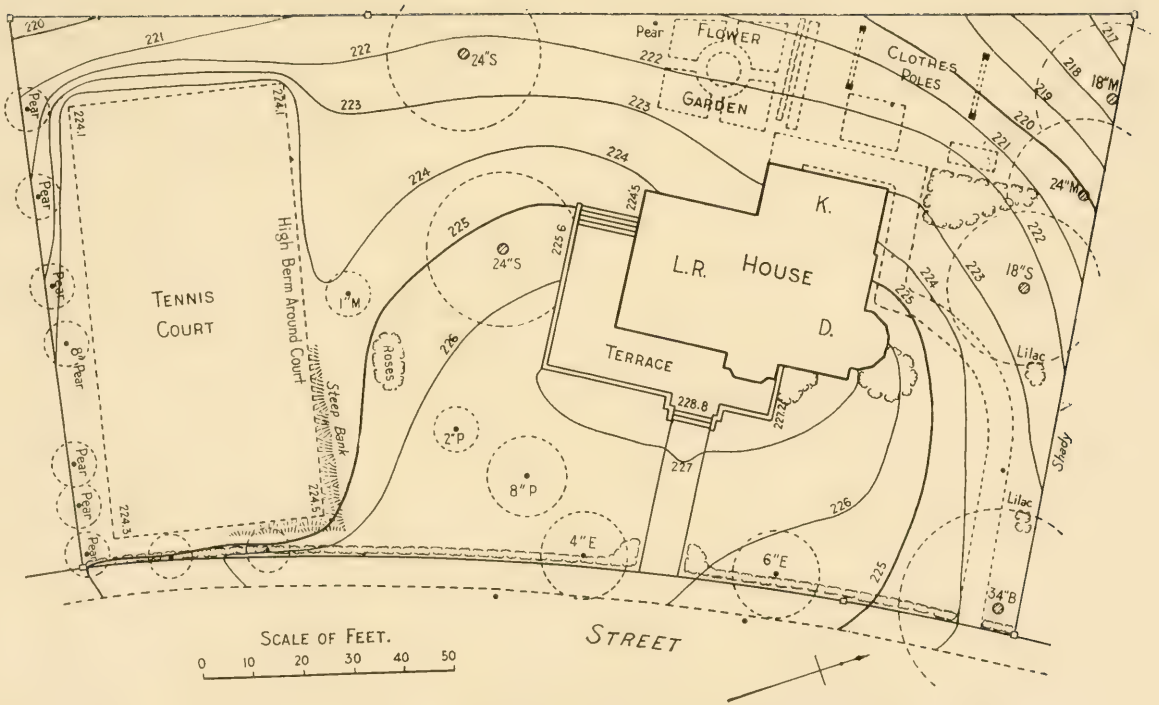
point where the line of sight strikes the pole and the ground will be the elevation to be placed upon the plan. For convenience it is a good plan to assume the top of the level at 100, and every measurement down as the land varies in height will be below 100, as 96 feet 6 inches or 91 feet 7 inches. These measurements must then be placed upon the plan in a position to agree with the point in which they were taken upon the ground. The land can be divided into squares of 10 feet or 20 feet for convenience of locating the measurements. See Plan VII.

Locate also the street, curb, grass strip, and sidewalk and the proper heights on the property line to which it will be necessary to grade. If there are poles, trees, hydrants, or sewer manholes between the street and sidewalk they should also be located that they may be taken into consideration in designing the approaches to the house. If the site is too difficult for this simple home-made method a surveyor can be secured to get the information. The one foot contours of elevation with all the natural and artificial features should be shown upon the plan. See Plans II, X, XIII, and XIV.

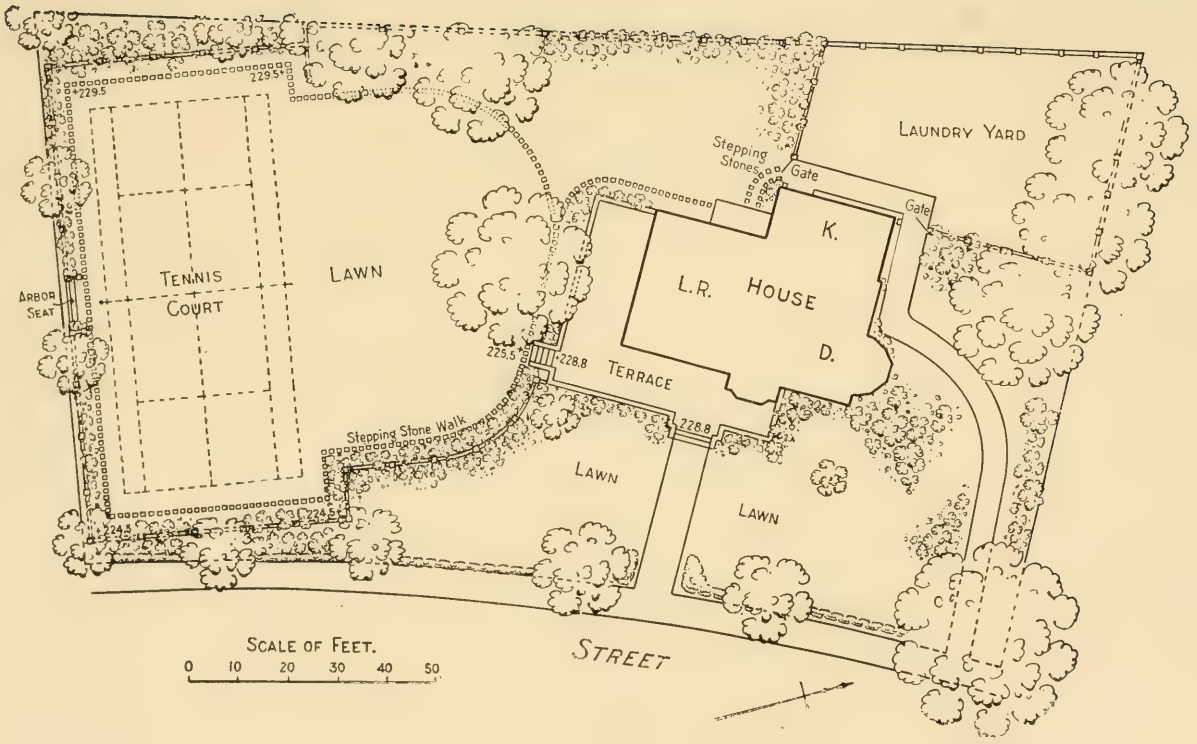
Surveyors usually make the plans on the 10 foot, 20 foot, or 40 foot scale according to the size or detail of the lot required. On all plans be sure and place a north point. The north point may be obtained by taking the direction of the shadow cast by a pole at 12 o'clock at noon from some known point on the ground and drawing the line upon the plan. This is especially useful in the study of the house and the grounds. The plan made should represent the lot.

The next step is to make a rough preliminary outline of the house showing the location of the rooms desired in their relation one to the other.

With the preliminary outline of the house and the survey plot the process of development can begin. Place the outline of the house on the survey in the position thought of on the ground, whether 25 feet or more from the street line and the supposed position from the side line. Then study the loca-



PLAN II. Topographical map Estate "A." Note flower garden on shady side of house, trees and rose bed scattered on the lawn, and steep bank about tennis court. (Area about one-half acre.)



Plan III. Preliminary Plan for Estate "A." Simple open treatment unifying the house with the grounds.

tion of walks, drives, gardens, lawns, and tennis courts in their relation to the house and to each other. See Plans III, IX, and XV.

The height of the first floor above the street should be determined, allowing for the height of the under pinning of the house and the necessary slopes to the street. At this point if there is much difference in elevation a cross section should be made to assist in determining the height. See Plan XI.

Before going too far, examine the practical points such as the coal delivery, the delivery of supplies to the house, the relation of the living room windows to the sun and to the lawn or garden. There may also appear difficulties in grade for the walks or drives which will need adjustment. See Plate XX.

That which is usually carried in the mind's eye on the ground will appear out of place and awkward when drawn on paper and studied. Drives that would seem easy enough in grade, and graceful in alignment, will be found to be excessively steep and crooked when drawn and figured. The supposed position for a lawn or flower garden will be found to be impossible. The bulkhead or coalhole may need to be moved or a flight of steps or a door introduced into the design of the house in order that access to the lawn or garden may be made direct. Afterthoughts in building are always expensive, and there are many examples of what "not to do" in the houses and grounds that have been carelessly constructed. See Plans VII and VIII.

The outlines of the beds of shrubs and position of the trees are then added to the preliminary sketch, but not until all the practical points have been determined. There must be a use for every portion of the grounds the same as there is for the house, whether for service, pleasure, or adornment. If the problem is too difficult an experienced landscape architect will be of assistance in sifting the chaff from the wheat in the ideas and give unity and originality to the scheme.

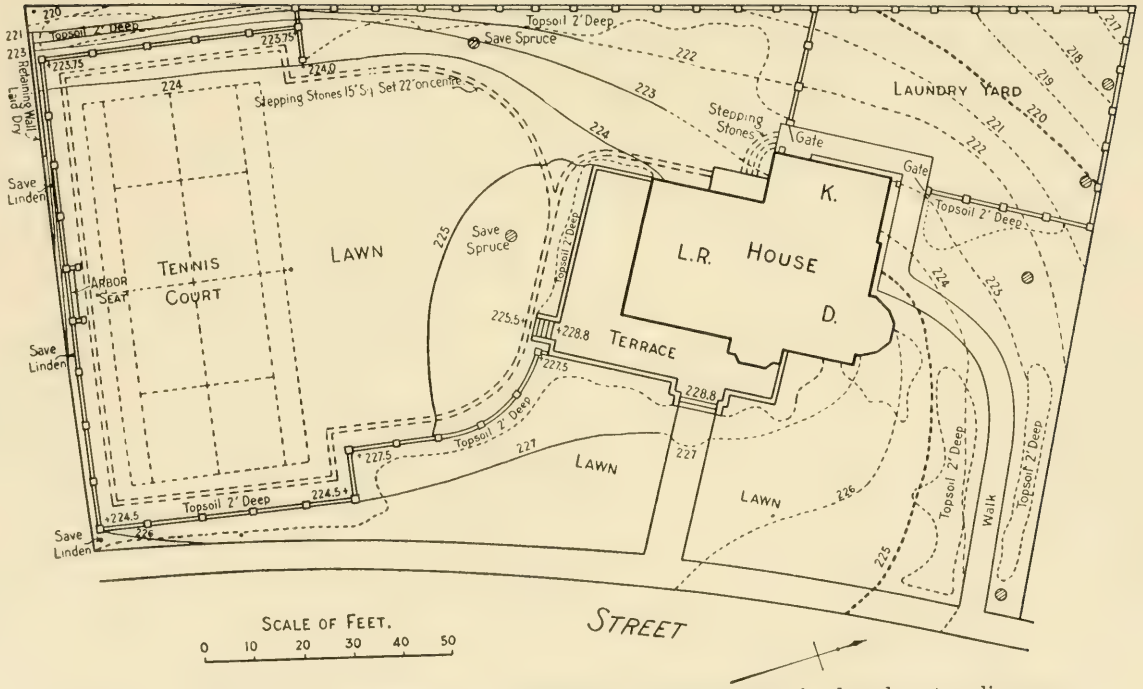
Having determined the preliminary sketch the next step is to enter more into detail of both house and grounds.

At this point, if the home builder has not sufficient confidence or knowledge (and most men are wise enough to know their deficiencies) to carry out in detail the plans for the house an architect should be consulted. When the architect's plans are completed and the specifications are drawn, the wise man plans his grounds in detail, or calls in a landscape architect to make a plan that will use all the materials excavated economically. The plan is called a grading or working plan. It will show the excavation and fills to be made to get the desired shape, the location of the walks, drives, etc., with their proper grades and indicate the depth of topsoil to be used for a lawn, garden, or for planting beds. See Plan IV.

A specification accompanying the plan should state the character of work and kind of materials required.

It is not necessary to complete all the work planned at one time; a portion can be carried out with the excavated materials from the cellar. The remainder of the work can be completed from time to time as funds become available.

By thus working to a definite end, the completed whole will eventually be secured. The work should be thoroughly done for good results.



PLAN IV. Grading Plan for Estate "A." Note existing surface shown by dotted contour lines, proposed changes by full contour lines.



PLATE X. Drive located on simple curves at side of property, carriage turn close to kitchen door and laundry yard. Visitors alight halfway up the drive. Shrubbery border screens drive from house lawn.

CHAPTER V.

What is worth doing at all is worth doing well.

A GOOD design needs good construction. The execution is often beset by many difficulties largely caused by lack of knowledge or the failure to appreciate the value of good work. Man can judge of, and will pay for, a good piece of wood or stone work, but in the grounds there is often an effort to save expense at the loss of good results.

By all means the use of poor soil or rubbish should be avoided in the filling, as it will show later when an attempt is made to grow grass or shrubs. The disposition of the subsoil and the topsoil must be carefully watched. Not every man who can handle a shovel well can grade well; the workmanship of the skilled artisan is displayed even in this menial type of work. A man with good judgment will save extra expense by scheming the work to avoid much double handling of soil.

A good way is to clear the topsoil from a small area in both the portions to be excavated or filled, and pile the soil in some convenient yet out of the way place. Then make the excavation or the fills, and when more area is needed to work on, clear away some more topsoil and place it over the filled subsoil in its permanent position.

In grading or shaping the ground every effort should be made to have the slopes graceful and smooth. There is a line of beauty known as the ogee curve, which can be used in grading with as good results as by artists in their work. See Plan XI.

In making the side slopes to a drive or walk, care should be taken to grade them to graceful lines and make them soften into the adjoining grounds, avoiding any sharp or abrupt angles. If anyone observes the natural slopes which occur in

fields they will see that there are no harsh lines, and wherever man has made excavations, nature is trying to soften the sharp edges and remove the ugly defects.

The location of a drive is important to its success. It should conform to the topography and shape of the land. It should be planned to save any valuable existing features or a fine boulder, a good tree, a ledge or a group of desirable shrubs. Drives are means of ingress and egress, and should serve these purposes quickly. The direction should be made very simple; unnecessary crooks and turns are only awkward, not beautiful. After once entering the property and having seen the house, it is a poor plan to make the drive meander about. It should be made as direct as possible. To the moderate home, there should be some reason for building the drive other than for the delivery of coal. The added expense of basketing the coal at 25 cents per ton is more than offset by the cost of the maintenance of the drive. See Plates X and XVIII.

It is a poor plan to make the house appear like an oasis in the desert by the encircling of the drive. The drive surface is not very handsome in itself and should not be made wider or more extensive than is necessary. Lawns, shrubberies, and trees are more to be desired than barren drives. Many a beautiful lawn has been separated from the house and spoiled for enjoyment by a poorly located or unnecessary drive. If there are no existing features to be saved or as a guidance or excuse for a curve it may be necessary to plant trees and shrubbery to give reason for the direction planned. Never use a flower bed or small architectural object or an urn; they are too trivial.

The width of the drive is determined by the frequency of use. If the distance is short and there is but little driving a width of 9 or 10 feet is ample. If the distance is longer or where there is need for carriages passing each other, the drive should be made 14 or 16 feet in width. On no account should a drive be made 12 feet in width, as it is too wide for a single drive and not wide enough for two vehicles to pass without

damaging the turf edge. It is a very deceptive width to persons driving and meeting another carriage as it looks wider than it really is. A muddy drive is a poor introduction to the home grounds. The surface drainage from the land adjoining the drive and the drainage of the drive itself may need to be taken care of by means of subsoil drains.

If the subsoil is clay or very wet, underdrains should be used on the sides or in the middle of the drive. This is done by digging a narrow trench 3 feet or 4 feet below the proposed finished surface and laying 2 inch or 3 inch agricultural tile at the bottom of the trench in such a slope that the water will run through them. The joints of the tile should be covered with burlap or tile collars used in addition to prevent the joints becoming clogged. The water passes largely from the land into the tile through the joint. In filling in the trench, first throw some hay, stone, or inverted sod over the tile, then spread a layer about 6 inches in depth of small field stone, broken stone, or coarse gravel as an additional means of drainage. After this is done the soil may be refilled and tamped with a rammer.

The surface water can be taken care of by forming a groove or turf gutter at the side of the drive or by building a narrow gutter of stone or brick.

If there is a large quantity of water flowing from the adjoining surface it may be necessary to use a catch basin. A very economical way to build one is to use three lengths of vitrified sewer pipe, 20 inches in diameter, set on end. On top, an iron grating is set to fit into the bell of the pipe. The middle length of the pipe should have a "T" outlet usually about 6 inches in diameter.

From this the drains can be connected and laid to the desired point of discharge. Smaller sized catch basins can be built to take care of a smaller flow of surface water.

The joints of the pipe should be all sealed with cement mortar, and it is a good plan to set the bottom upright pipe in cement. This then forms a catch basin that will hold the debris

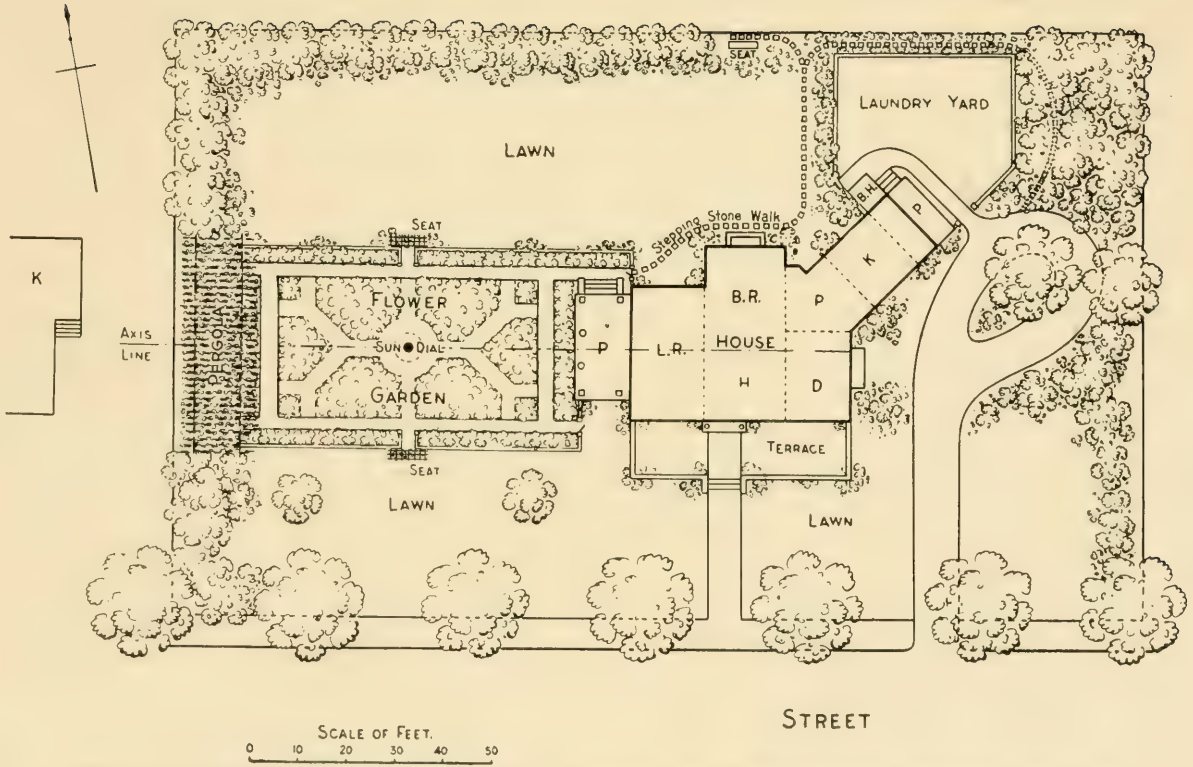
running into the basin. This basin will need to be cleaned out occasionally. This is done by removing the grating and using a long handled shovel. The drain pipes should be laid on an inclination sufficient to get good flow.

In excavating for the drive all the topsoil and poor subsoil should be removed to a depth of 2 feet if necessary, and a foundation replaced of good clean material, gravel or refuse stone. The bottom should then be brought to a rounding surface, allowing for the depth of the finishing material, gravel, macadam, or Telford.

If there is but little travel, a gravel drive will be satisfactory. It can be built by using two layers of gravel 4 inches in thickness. The bottom layer should contain the larger stones or coarser part of the gravel and rolled to a fine surface. On this layer the finishing 4 inch layer can be placed. This should be good binding gravel with the larger stones raked out. Then the surface should be rolled smooth and to a rounding shape or crown of $\frac{1}{2}$ inch to the foot at the sides and round in the middle. It seldom happens that gravel can be obtained of the required quality in the pit. If the gravel is too coarse it should be screened through a $2\frac{1}{2}$ inch mesh screen. A two and one half ton horse ring roller is the best to use for rolling the drive on small grounds.

If there is more driving, or there is not a good quality or quantity of gravel in the neighborhood, a macadam drive should be made. This can be built by using 4 inches of crushed stone of the $1\frac{1}{2}$ inch size, laid and shaped in the same manner as for the gravel drive and rolled to a firm surface. On this rolled surface is next placed a 1 inch layer of smaller crushed stone and screenings mixed. This should be watered and rolled until a smooth hard surface is obtained. The same crown should be made in finishing as described for the gravel drive.

If there is a great amount of use, or if there is a large quantity of stone on the grounds, a Telford drive can be built on a



PLAN V. Simple treatment for nearly level lot. Pergola at end of garden screens the neighbor's kitchen door. (Area about five-eighths acre.)

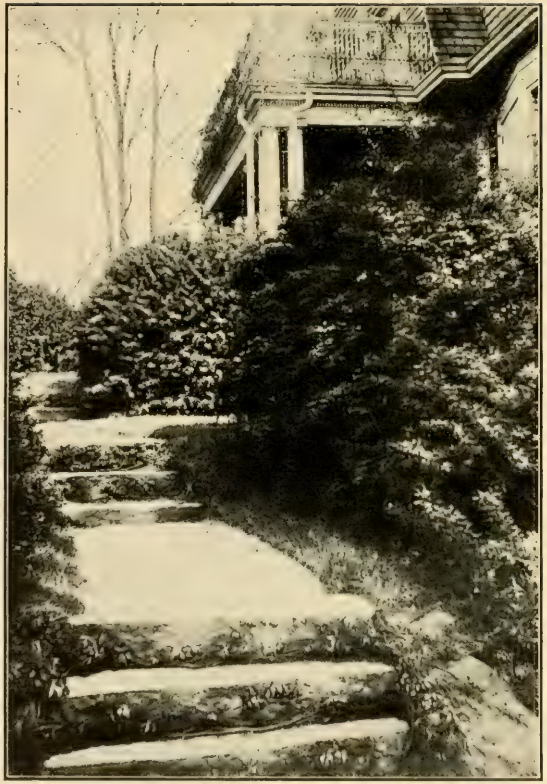


PLATE XI. Steps and walk to fit slope. Ampelopsis Veitchii on steps.



PLATE XII. Shrubbery planted at base of house and adjoining grounds makes an harmonious composition.

foundation shaped 1 foot below the proposed finished surface. The bottom layer of stone is composed of pieces of broken stone averaging 8 inches in size, set upon end. The spaces between the larger stones are filled and wedged with smaller pinning stones. On this bottom foundation layer a 3 inch layer of the medium size $1\frac{1}{2}$ inch or $2\frac{1}{2}$ inch crushed stone should be placed and thoroughly rolled until smooth. After this has been done a finishing layer 1 inch in thickness of small crushed stones and screenings mixed should be placed, rolled, and watered until a smooth hard surface is obtained. If necessary a little clay or binding gravel may be used for a binder in the finishing courses.

The grades of the drive should be as easy as possible; an approach or main entrance drive should not have over 5 feet rise in the 100 feet, a service drive not over 7 feet. In extreme cases it may be necessary to increase these figures to 10 feet in the 100.

Walks or paths are designed and built on the same determining principles. There should be some reason for their being: as, to go to an arbor, a tennis court, the doors of the house, or other buildings. Mere meandering walks without any occasion for their use are not objects of beauty. They may be constructed either of gravel or macadam, and the widths vary from 2 to 8 feet according to the purpose to be served. The grade of the walk should be as easy as possible, never over 12 feet in 100. A crown of $\frac{1}{4}$ inch to the foot on the sides and rounding in the middle is ample for a walk. See Plates XXI and XXII.

In steeper slopes where it is desirable to carry a walk, steps should be used to overcome the steep grade. These can be built to fit the ground or may be short flights with a short run of walk between each flight. The steps may be built of wood, stone, or brick. See Plate XI.

When there is but little use, yet a means or communication is desired, stepping stones should be substituted for the walk.

This will remove the effect of the walk dividing the lawn and reduce the maintenance to a minimum. Stepping stones are made by using slabs of stone or flat boulders set into the lawn flush with the surrounding surface. A good distance apart for the stones for convenient walking is 22 inches on centres. If settlements should take place on the lawn about each stone, it is a very easy matter to raise or lower them to conform to the surface. If they are kept at the proper elevation a lawn mower will pass over and cut the grass without the need of using shears along the edges as is often used in other kinds of walks. See Plates III and XIII.

A clean yet more expensive method is to build the walk of brick. A good foundation should be made to avoid settlements. If the work is properly done there will be no repairs. The bricks can be laid herringbone fashion, lengthwise, crosswise of the walk, or in various patterns. A little curb edge may be formed along the side of the walk by elevating a brick on its side about an inch above the general surface and the earth filled flush with the top. The color of the brick should harmonize with the building and its surroundings. Yellow brick should be avoided, red is the most pleasing color to use. See Plate XIX.

The use of artificial stone, often called granolithic, makes a good but more expensive walk. The foundation for this kind of walk must be thoroughly made and good under drainage provided to avoid disturbance by the action of frost. It may be necessary to remove poor or clayey soil to a depth of 3 feet and the space filled with dry gravel, broken stone, or boiler cinders; the depth will vary to suit the locality. See Plate XV.

The walk is then divided into sections varying from 3 to 6 feet square by the use of strips of wood nailed to stakes driven into the ground. If settlement takes place, each block will separate as a single stone without cracking. The stones can be laid alternately or continuously by sanding the joint, or with a strip of paper placed between before laying the next block adjoin-

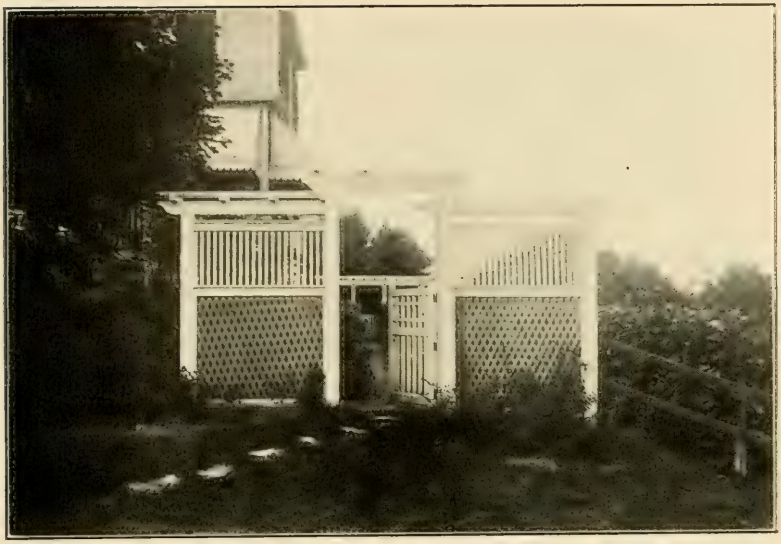


PLATE XIII. Stepping stones to overcome grade to street end of terrace garden.

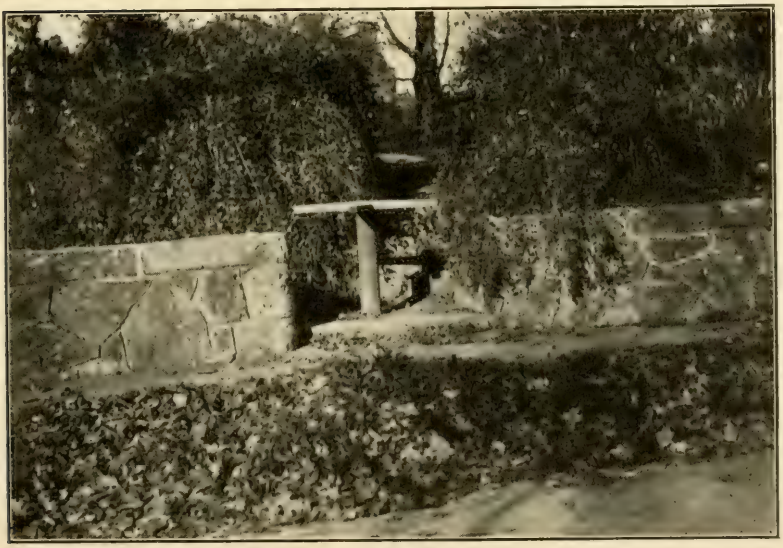


PLATE XIV. Well built wall, note raked out joints and slight batter. Turnstile instead of gate.



PLATE XV. Kitchen entrance screened in combination with laundry yard. Celastrus scandens (bitter sweet) on archway.



PLATE XVI. A laundry yard fence designed in harmony with the house.

ing. The bottom layer of the walk is usually laid 3 inches in thickness, composed of one part best American Portland cement, two parts clean, sharp sand, and four or five parts broken stone. After the bottom layer is thoroughly rammed, a finishing layer one inch in thickness is laid, composed of one part cement and one and one half parts clean, sharp sand or one part cement and two parts stone dust.

The surface is then finished smooth with proper tools and protected from the weather by coverings until the surface is firm and hard.

The rate of grade in a granolithic walk should not be over 5 feet in 100 feet, never over 7; a safe rule is to use it only on walks that bluestone flag stones would be used. The surface is so smooth that it is dangerously slippery when too steep. The color of the walk can be varied to red or slate by the use of coloring pigment. Slate blue color may be obtained by the use of lamp black; slate color is obtained by the use of one pound of lamp black to a barrel of cement. Red color is obtained either by the use of red sand or ground red sandstone or venetian red or both mixed. Reds are liable to fade. The limit of color is five pounds to the barrel of cement.

Another method for walks and drives is the penetration method. The foundation layers are laid in the same manner as outlined for Telford and Macadam work. The lower layers are filled with screenings, sand, or gravel and the upper layers are rolled and bound with bituminous materials, either a mixture of pitch and tar or asphalt. There are several brands known to the trade with varying merits according to the uses of the drive or walk. The finish of these surfaces are made with pea stone rolled into the first coat and on the second coat of the preparation screenings are spread and rolled in to get the macadam appearance.

CHAPTER VI.

> And some praise must be allowed by the most scrupulous observer to him who does best what multitudes are contending to do well. — S. Johnson.

FANCY free the dreamer thinks of arbors, seats, and cool retreats, yet to build and make real in lines of beauty is no dream. An arbor in the grounds may form a vista point in the landscape, be the excuse for ending a walk or the means of commanding a fine view that otherwise would not be seen from the house. If near the house, it should be designed to be in keeping with the architecture of the building. If at some distance away from the house spruce poles, cedar slabs, or roots make good work. It is usually better to have a floor raised at least one step from the ground. It is a good plan before building to observe structures that have been built by others and note if they are inharmonious with the house and grounds. Then avoid these in building on the home grounds. The more dignified name for an arbor is a pergola (the name is wrongly used), useful to inclose a lawn, a flower garden, or help hide some objectionable feature in the neighborhood. It should look when built as if it belonged to the place and not appear as if dropped by a passing wind without relation to the house or lawn. See Plans V, and VIII and Plate XIX.

Grape or flowering vines can be grown over it making on hot summer days a pleasant retreat from the heat of the house. See Plates VIII, IX and XXI.

A seat to end a walk or command a view is better built on plain and unobtrusive lines. If built more on the style of an old fashioned bench or form, it will be less conspicuous than the many commercial designs offered for sale.

The arbor or pergola may be planned so as to form one side of the laundry or clothes drying yard, helping to make a very desirable feature. See Plates XV and XVI.

If a laundry yard fence is to be built it should be about 7 feet high, and designed architecturally correct. The posts of such a fence may be either of red cedar, white cedar, chestnut, or locust, so that the chance of decay will be largely overcome. Make the mesh of the lattice close enough to hide the clothes from general view, and yet open enough to allow a circulation of air to dry the clothes. The use of a laundry yard should be encouraged as it is a great aid in keeping the grounds neat and helps to form an artistic setting when vines and shrubbery are well placed. A very practical advantage from the housekeeper's standpoint is, that the clothes are shielded from the gaze of outsiders, and the despoiling by dogs or other animals. The clothes may also be laid on the grass to bleach in perfect safety. Spruce poles set closely together with the bark left on make a good fence. This kind of fence will last for years and will avoid the necessity of painting.

Fences may be needed along the street front for the protection of the grounds. A height of 3 feet to 3 feet 6 inches will serve all the purposes required. It is better to substitute a hedge or border of shrubs planted about a concealed wire fence, thus wild animals are excluded and the grounds made more attractive. A woven wire mesh fence on the side lines covered with vines makes it an economical and good way to protect the grounds from encroaching neighbors. See Plates XXIII and XXIV.

For more permanent effects build a wall. The foundation of the wall should be laid deep enough to be below the working of frost and wide enough at the base to carry the wall built above. A good safe rule to use in building bank walls is to make the base one half the height in thickness. See Plates XVIII and XXVI.

Terrace and bank walls look better when built with a batter

or slope on the outer face. Thus the tipping over effect often seen in plumb walls will be obviated. See Plate XIV.

The treatment of the coping of the wall affords an opportunity to give a finishing touch. The finish of the face of the wall and the manner and method of laying the stone, calls for taste and skill. Open joints, with the mortar raked well back from the face of the wall, form a more pleasing and substantial treatment than if the mortar is smeared on the surface. Let the individual stones stand out. See Plate XIV.

Pleasing effects are made by using boulders and weather beaten stone laid at random to hold a very steep bank about a summer house or other artificial object; the spaces being filled with good soil, rock loving plants may be induced to grow. On no account should a rockery be built in the centre of a lawn, it being classed as one of the incongruous objects which help to mar the beauty of the grounds, and is in the same category as a red painted pot filled with flowers hanging on a three forked stick, or a piece of sewer pipe for an ornament, or an old boat filled with earth in which are geraniums and nasturtiums.

Often a brook passing through the home lot could be made use of in many ways. If from a higher region it might be conveyed to a fountain basin in the centre of a flower garden, or a natural treatment can be made in the form of cascades, and interesting water plants can be induced to grow along the banks. In planning or building the water basins, whether of stone, cement, concrete, or brick, the practical points must not be overlooked, such as the drainage and the liability of damage by frost.

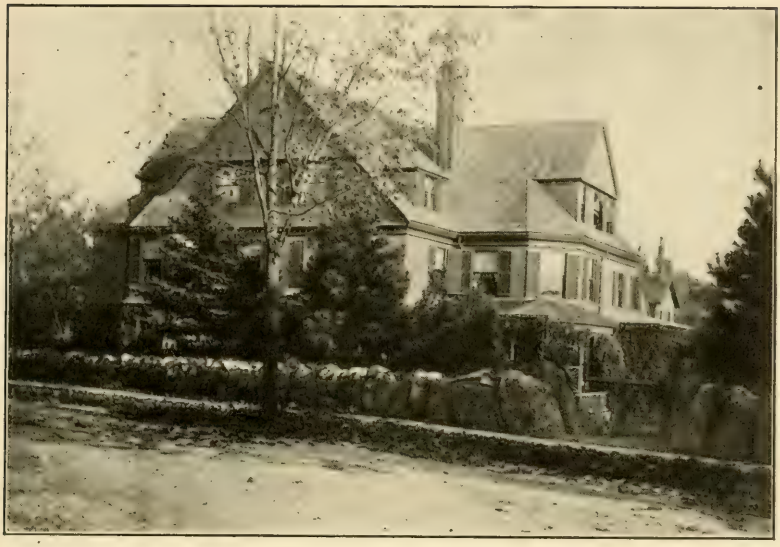


PLATE XVII. Wall built of boulders and ledge stone covered with vines. Top of stones are about three feet above sidewalk.



PLATE XVIII. Service entrance to estate. Front entrance court is about fifteen feet away to the left, screened by well studied plantation.

CHAPTER VII.

> One cultivates a lawn even with great satisfaction; for there is nothing more beautiful than grass or turf in our latitude. The tropics may have their delight but they have not turf; and the world without turf is a dreary desert. — CHARLES DUDLEY WARNER.



HE joy and delight of every home builder is a good lawn. Without it all efforts at adornment seem futile. The green carpet is the canvas upon which the house, trees, shrubs, and flowers depend for setting. How to obtain a good lawn and how to keep it good, requires more thought than any other portion of the grounds. A weedy patch, a brown or sunburned spot is so conspicuous as to need immediate treatment and is often hard to cure. How often one sees a lawn dug over and reseeded with but the same poor result! The real secret is to have the conditions right, and the workmanship and materials of the very best. Added to these must be skill and good judgment to secure the results.

The quality of the soil and the subsoil should be examined, and if there is a deficiency of the requisites for a lawn, the lack should be supplied. Cold, soggy, wet land must be improved by subdraining, and ledgy land by blasting away the ledge to at least 3 feet below the proposed new surface, or the ledge may be filled over to get the proper depth of soil. A moist soil is the best for a lawn with a slight mixture of clay or a clay subsoil which retains a certain amount of moisture yet is not wet. Clay may be added to very sandy soil, or sand to very heavy, stiff, clayey soil to get the proper conditions. If the soil is sour, air slaked lime can be used to correct the acidity. It is often thought that the use of manure or fertilizer is a needless expense because it is buried in the ground and nothing can

be seen of the money expended, yet there is no surer way of securing lasting results than by the use of plenty of good manure and fertilizer.

Manure should be very well rotted, mixed stable manure or cow manure is the best. Manure which contains shavings or wood chips is a very poor kind for making a lawn. As the wood decays on the ground a fungus is formed which causes bare spots. Commercial fertilizers may be used to advantage in many instances. They act, however, more as a stimulant to the soil than as a permanent treatment. Manure puts humus into the soil which feeds the plants after the commercial fertilizer has lost its power.

The practice of placing manure on the grass about the home in the fall is rather disgusting in that it makes a barnyard of the premises all winter. The use of sheep manure or wood ashes in the spring during the April rains is equally as beneficial. If it is desired to use manure, two or three weeks' dressing in the spring during the April showers is more effective than manure placed in the fall upon the frozen ground. In the latter method all the fertilizing juices wash away into the street or sidewalk.

A common practice in building is to scatter the excavated cellar material about the house over the existing topsoil, spread on top a few inches of good soil, and expect to get a good lawn. As a good lawn is dependent on the quality and quantity of the topsoil, it is desirable to remove and save all good soil about the building. Then after the subgrading has been done respread the topsoil at least one foot in depth. The topsoil should be kept clean and free from stones, roots, and weeds.

The grading or the shaping of the ground is responsible in many ways for the appearance of a lawn. A slightly convex surface gives the appearance of extent, and one slightly concave of narrowness.

Any ugly banks or ridges should be removed, or shaped to secure graceful smooth lines. When the proper depth of top-

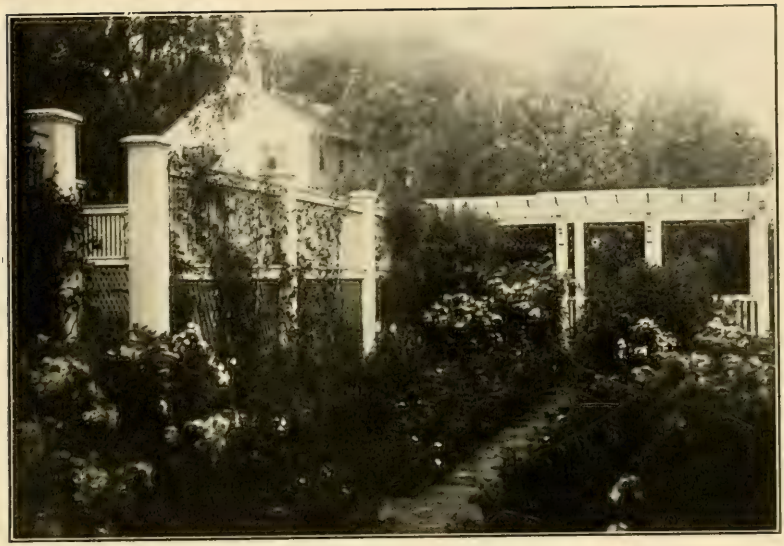


PLATE XIX. Terrace flower garden. Pergola at end. Laundry yard seen through opening at left. Dorothy Perkins rose on fence, Phlox in bloom.

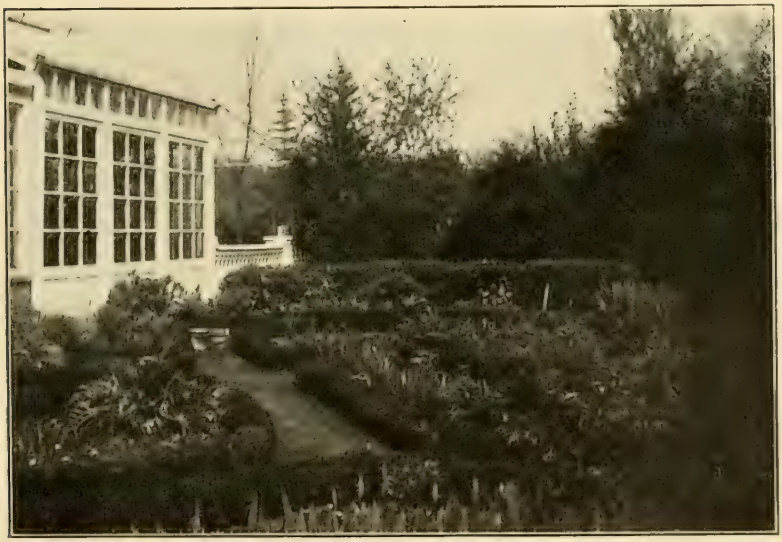


PLATE XX. Flower garden, box bordered, adjoining a small conservatory.



PLATE XXI. Terrace flower garden. House before had appearance as if it were sliding off hill. Brick walk with birch edge.

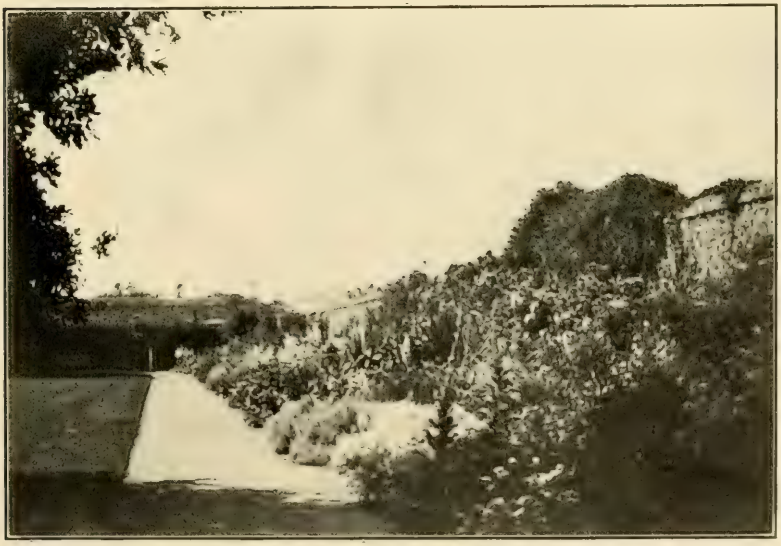


PLATE XXII. Flower bordered walk.

soil and shape have been secured the manure should be evenly spread and spaded in 8 or 10 inches deep. Grasses have long roots and will seek the manure which might seem to be buried too deeply.

The manure should be used at the rate of 15 to 20 cords to the acre, depending on the quality of the soil and the kind of manure. After the manure has been dug in, a good commercial lawn fertilizer, at the rate of 500 or 600 pounds to the acre, should be used to act as a stimulant to the grass seed. Then the ground must be raked, all the hollows filled, humps smoothed and rolled to an even surface. When the ground is smooth, sow the seed at the rate of about 70 pounds to the acre, then give a final raking or rolling. Nothing but the very best lawn grass seed should be sowed. The kind known to the trade as recleaned, fancy cleaned is the best. Buy seed only of honest, reliable dealers. A good mixture for general purposes is to take two parts Kentucky blue grass, two parts of Rhode Island Bent, two parts Red Top, and one part white clover. Other mixtures of different proportions and kinds of seed can be made to suit special conditions.

Weeds will be a source of annoyance coming either from the manure, poor seed, or the soil itself. A heavy sowing of seed to form a thick mat will help to kill out the weeds. When weeds appear they should be dug out of the lawn. The best time to seed is just before a shower. Heavy rains are liable to wash the seed away and make gullies in the lawn. These scars should be repaired and reseeded immediately. Any bare spots where the seed fails to come up should be reseeded after waiting a reasonable time, say, about two weeks after seeding. Patience and perserverance is the price of a good lawn.

There is a difference of opinion as to the best season to seed a lawn, some claiming that the spring is the better, others the fall. If the seed is sown early in the spring good results will be secured, but if sown late the summer droughts will burn

the young grass before it becomes established. Good success is obtained by sowing in the fall. The last two weeks in August or the first two weeks in September is the best time. In the fall weed seeds are not so vigorous, the rains and heavy dews are almost certain, and there is time enough for the grass to get established before winter.

Good judgment should be shown in caring for a lawn. The first mowing of a newly seeded lawn should be done with a scythe. Avoid too close clipping of the lawn during droughts. Do not let the grass grow too tall as it shades the roots causing the grass to have a burnt appearance.

Good turf is the one essential for a tennis lawn. A quick method of securing the finished surface is to sod the area. Sprinkle some screened topsoil and commercial lawn fertilizer over the sod and sow a little grass seed, water and roll. A space of about 50 feet by 100 feet is usually needed and allowed for a tennis court.

Tennis has developed from the simple game played on the lawn to one played on a specially prepared dirt or gravel court. The desire to own a court has caused all ideas of beauty in the lawn or home surroundings to be abandoned. The unity of what was once beautiful home surroundings has often been destroyed. Unless kept in constant use and repair they are apt to become barren wastes with straggling weeds. Such surfaces should be hidden from view of the house by a fence covered with vines or a plantation of trees and shrubs.

To make a gravel tennis court a space about 50 feet by 100 feet should have all the topsoil and poor subsoil removed. If the ground is very wet the land should be underdrained. Then use the same methods for building the gravel court as is adopted for the building of gravel or macadam drives. If the court cannot be made level, slope either way about $\frac{1}{8}$ inch to the foot and in the direction of the general slope of the land. The back net can be made a permanent fence by the use of

gas-pipe rails 8 feet high and electric welded mesh wire securely fastened to the rails by galvanized or copper wire. The mesh of the wire chosen must be of a size to keep the tennis balls from being driven through the fence. The gas pipe should be painted dark green.

For a full-sized, regulation tennis court an area about 60 feet by 120 feet should be set apart. The court should be planned so the length will be as nearly north and south as it is possible to make it. This allows for the play in the morning and the afternoon, as the sun will then shine across the court and not in the eyes of the players. The fence in such cases is usually made about 10 to 12 feet in height. On either side of the court an opening should be left in the form of a little gate to allow the players to get a stray ball that has been driven over the fence. On either side a seat can be arranged under the shadow of a vine-clad entranceway to the court. Well selected vines suitable to the locality and exposure enhance the beauty of the court as well as furnishing a background for the white tennis balls. Art can even be displayed in the arrangement and treatment of the tennis court, instead of the dreary wastes so often seen.

CHAPTER VIII.

> There are too many who have no idea of improvement, except by increasing the quantity, the quality, or the value of an estate. The beauty of the scenery seldom enters into their thought; and, What will it cost? or, What will it yield? not, How will it look? seems the general object of inquiry in all improvements. — Sir Humphrey Repton.

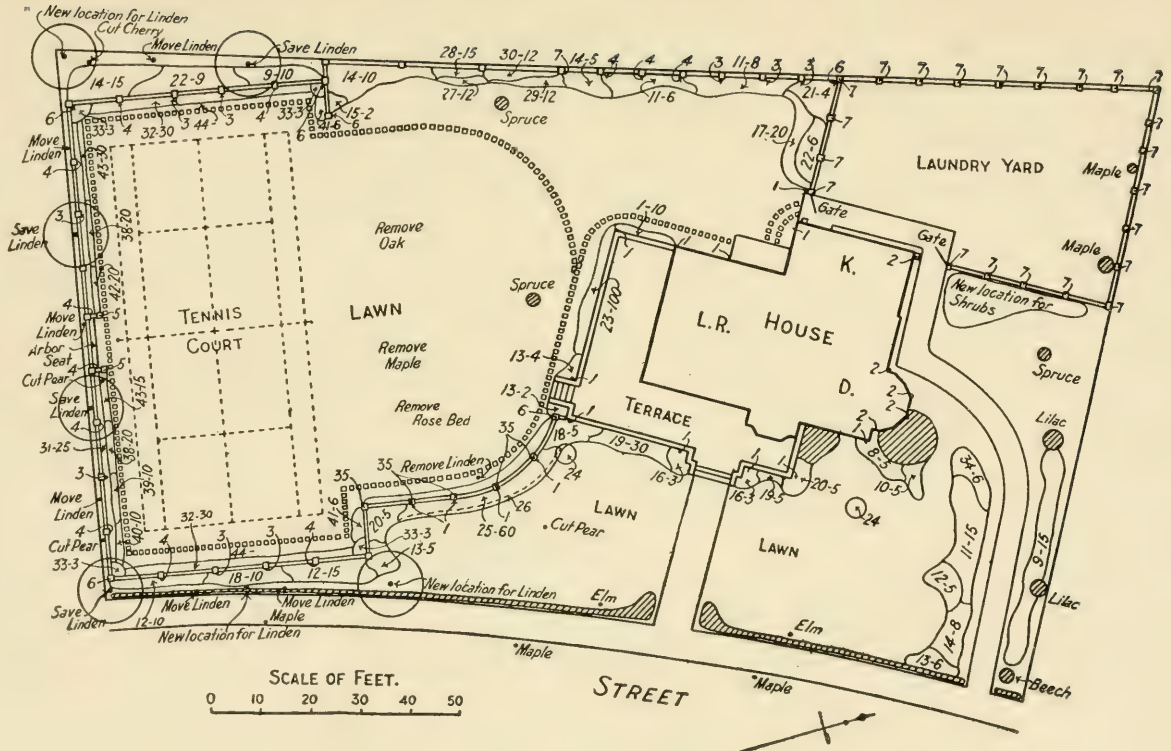
WHAT shall I plant? is the usual question of the improver, not where shall I plant or how will the grounds look? If there is an open space or a nice clean expanse or breadth of lawn there is great temptation to plant in the middle a tree, a bush, a flower bed, or a rockery. It has almost become a belief that he who plants a tree is a benefactor — only plant — never mind art or artistic feeling in the location of the tree. Sometimes one will hear a remark, — "I don't need any plans; just give me the bushes; I can see it all in my eye how to plant on the ground." Such words are not infrequent from so-called professors of the art of landscape gardening or landscape architecture. Does it not seem strange that such men as Repton and Olmsted, masters in their art, should need to make a plan? See Plan VI.

Then the next step is to make a planting plan after the grading plan has been finished or the grading has been completed. This plan should show in detail the kind and number of plants to use to form the groups and masses indicated on the preliminary sketch.

To begin with, take the grading plan and the topographical map and compile a complete map of all the existing features, the house and the new changes in the grounds. Then locate by arrow lines the direction of the views from the principal

PLANTING LIST.

1. Euonymus radicans; 25 plants.
 Evergreen Creeper.
2. Hedera Helix; 5 plants.
 English Ivy.
3. Clematis paniculata; 9 plants.
 Clematis.
4. Lonicera Halleana; 12 plants.
 Hall's Honeysuckle.
5. Wistaria Chinensis, 2 plants.
 Chinese Wistaria.
6. Crimson Rambler Rose; 7 plants
 Variety, Dorothy Perkins.
7. Ampelopsis quinquefolia; 23 plants.
 Woodbine.
8. Kalmia latifolia; 5 plants; 3 ft. apart.
 Mountain Laurel.
9. Ligustrum Ibota; 3 beds; 25 plants, 3 feet apart.
 Japan Privet.
10. Andromeda floribunda; 5 plants; 2 feet apart.
 Lily of the Valley Bush
11. Spiraea Van Houteii; 3 beds; 29 plants; 3 feet apart.
 Van Houtte's Spirea.
12. Ligustrum Regelianum: 3 beds; 30 plants; 2½ feet apart.
 Regels Privet.
13. Berberis Thunbergii; 2 beds; 17 plants; 2 feet apart.
 Japan Barberry.
14. Viburnum Lentago; 4 beds; 38 plants; 2½ feet apart.
 Sheepberry.
15. Cydonia Japonica; 1 bed; 2 plants; 2 feet apart
 Japanese quince.
16. Deutzia gracilis; 2 beds; 6 plants; 2 feet apart.
 Dwarf Deutzia.
17. Symphoricarpos vulgaris; 1 bed; 20 plants; 2 feet apart.
 Indian Currant.
18. Deutzia Lemoinei; 2 beds; 15 plants; 2 feet apart
 Lemoines Deutzia.
19. Iberis sempervirens suberba; 1 bed; 35 plants; 1 foot apart.
 Evergreen Candytuft.
20. Stephanandra flexuosa; 2 beds; 10 plants; 2 feet apart.
 Stephanandra.
21. Cornus elegantissima; heeled in on ground; 4 plants.
 Dogwood.
22. Lonicera Tatarica; 2 beds; 15 plants; 3 feet apart.
 Tartarian Honeysuckle.
23. Vinca minor: 100 plants; 6 in. apart.
 Periwinkle.
24. Crataegus oxycantha coccinea florepleno; 2 plants.
 English Hawthorn.
25. Trollius Europeus; 60 plants; 1 foot apart.
 Globe Flower.
26. Spring bulbs in edge of bed.
 Crocus; Scilla; Hyacinths.
27. Aspidium acrostichoides, 12 plants; 1 foot apart.
 Christmas Fern.
28. Aspidium marginale; 15 plants; 1 foot apart.
 Evergreen Wood Fern.
29. Dicksonia punctilobula; 12 plants, 8 feet apart.
 Gossamer Fern.
30. Osmunda Claytoniana; 12 plants; 2 inches apart.
 White Crozier.
31. Peonies; 50 plants; 2 feet apart.
 Named Varieties.
32. Phlox; tall flowering; 60 plants; 2 feet apart.
 Named varieties
33. Spiraea; Anthony Waterer; 12 plants; 2 feet apart.
 Anthony Waterer Spirea
34. Forsythia suspensa; 6 plants; 3 feet apart.
 Weeping Golden Bell.
35. New Dwarf Crimson Rambler; 5 plants.
 Baby Rambler.
36. Hardy hybrid roses; existing on ground; plant 2 feet apart.
37. Hardy perennials in flower garden at rear of house.
38. Phlox subulata; 40 plants; 8 inches apart.
 Moss Pink.
39. Alyssum argenteum; 10 plants; 8 inches apart.
 Gold Dust.
40. Dicentra spectabilis; 10 plants; 1 foot apart.
 Bleeding Heart.
41. Delphinium grandiflorum; 12 plants; 1 foot apart.
 Larkspur.
42. Papaver nudicaule; 20 plants; 6 beds; 1 foot apart.
 Iceland Poppy.
43. Anemone Japonica; 45 plants; 8 inches apart.
 Wind Flower.
44. Space reserved for low growing annuals.



PLAN VI. Planting plan for Estate "A."

NOTE: First figures indicate the Plants or mixture of Plants to be used in each space. Second figures show the number of individuals of each plant or mixture estimated to be required to fill each bed. See planting list, page opposite.

windows of the house, the street, and any other vantage point on the grounds.

Views are often destroyed by lack of consideration as to the ultimate effect of the shrubs or trees planted. Then locate or indicate the objectionable features that should be hidden, such as a neighbor's back door, a stable, etc. Then proceed to plot on the plan the desirable locations for the shrubs or trees chosen.

In making this plan the home builder may embody many of the choice plants often admired in some friend's grounds. By such consideration many disappointments will be avoided in the failure of plants to grow. The shade of a tree, the north side of a building, the climatic conditions, or the quality of the soil will preclude many of the plants desired. It will be found, however, that there are many more varieties that may be used never thought of by the home builder without such study.

The size of the plant as received from the nursery as compared with its ultimate growth is one of the usual forgotten points. Trees are planted too closely together as they appear only as poles at first. Later, when they grow and appear to crowd, there is difficulty in getting any of them removed. "Woodman, spare that tree" is one of the unwritten laws. Another error often made is the desire to use too large a variety of trees and shrubs. There are new varieties introduced and offered as specialties by the nurserymen each year which are destined to fail if the climatic conditions and soil preparations are unsuitable. It is better to limit the list to a few plants of sure growth at the first planting. Try to use plants that will take care of themselves.

In planning, strive to get simple broad effects instead of startling ones. The novelty, in time, passes away by the latter method and a more restful, homelike, and less expensive result is secured by the former plan. Plan to plant in groups and masses rather than the spotting of the lawn by the use of individual shrubs. Many a fine lawn has been

ruined by such methods. A single row of trees or shrubs for a screen is not so good as a broad belt or plantation. See Plate XXVI. The row looks too thin. However, it may be necessary to use a single row on account of the contracted area of the grounds.

What shall I plant? is the question usually asked, and not where or how to make pleasing grouping or picture-like arrangements. More than half the failures are due to this misplaced emphasis. It is the design, the general mass, the varied sky line or outline that makes the pictures, not the individual plant. Without considering the pigments one looks at a beautiful painting and realizes it is a masterpiece. Nevertheless it is the pigments in the hand of the master that makes the work of art. Likewise there are several kinds of plants which may be used in the same situation to obtain the same mass effect. It is a peculiar fact that by planting a place may appear to look larger, especially if the border plantations have been well studied. A group or plantation on the border line not only protects the boundary, but gives a limiting point for the eye to rest upon. If the interior lawn is kept free and open, the extent of the ground is increased. See Plates XXV and XXVI.

In planning a border plantation it is not necessary to omit the plants in the border, only vary it by the choice of plants with regard to the height to which they will grow. See Plates XXXI, XXXII, XXXIII, and XXXIV.

Choose plants that will harmonize in leaf, color, and form, unless a contrast is desired. If a contrast is desired it should be studied to avoid making a spotted appearance.

There are but few buildings that do not look bold and bare without some plants to soften the sharp line where building and ground unite. Plant along the base of a building, not too heavily, but enough to obtain the softening effect and make the house appear a part of the composition. See Plates XII, XXIX, and XXX.



PLATE XXIII. Wall and gate to kitchen entrance. Note good design for gate and poor bonding in construction of wall.

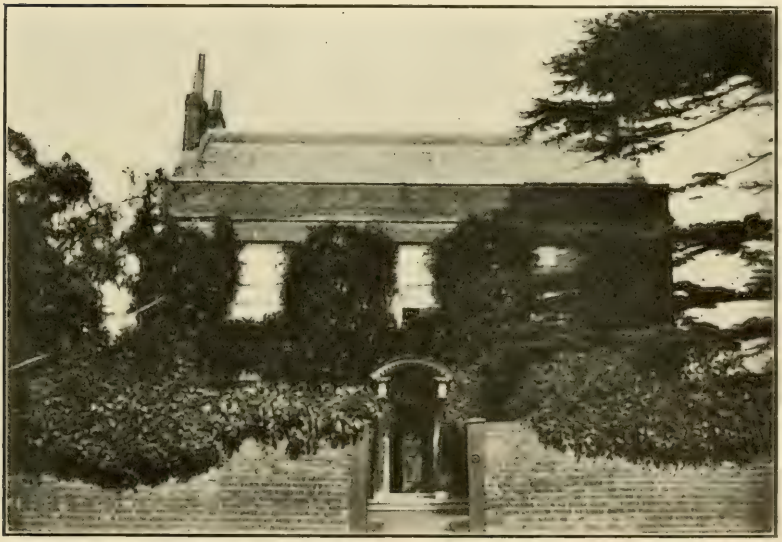


PLATE XXIV. Brick boundary wall, vine covered, screening the grounds from the public gaze.



PLATE XXV. Tree and shrubbery embordered lawn, simple yet charming. Weeping beech on right, Lombardy poplar in distance.



PLATE XXVI. Open lawn between house and street. House above street.

Do not cut flower beds in the lawn but use herbaceous perennials and plant them along the edge of the shrubbery border. The shrubbery forms a good background to set off the bloom.

Some people have a liking or hobby for hybrid roses, and the lawn is dug into beds and roses planted in every conspicuous place. The roses are beautiful when in bloom but at other seasons they are a group of straggling briars. The best way to have roses is to set apart an area especially for them, or plan a rose garden.

In designing the planting it is a good idea to study nature, walk along the roadside or in the fields and observe how masses are formed by the intermingling of the various trees and shrubs. These have character and grouping that is often artistically perfect. Such groups were formed by the seeds being carried by the winds or by birds. They represent the survival of the fittest, the stronger varieties predominating in the group.

In planning a group or mass the practice of having the plants arranged in tiers or ranks should be discarded, as the result is tame and uninteresting. The introduction of some pointed or spiry formed shrubs or trees as a lombardy poplar at salient points gives character and adds interest to what otherwise would be a dull and uninteresting plantation. See Plate XXV.

In planning it should be remembered that the plan gives only the locations of the various features and plants, and it must be borne in mind that everything will be seen in perspective when the plan is executed.

The human eye has been trained to seek balance of parts or symmetry of design. In fact, nature seems to be arranged with the idea of balance about some common centre. If there is one particular thing, it is placed in the centre. If there are two, they are placed equidistant from the centre. Thus in planning the home grounds there will need to be a sense of balance in the treatment. It is not necessary always to have the individual shrubs duplicated about a common axis, although in certain instances this might be admissible. It is the gen-

eral form, the appearance as a whole, that gives the sense of balance. See Plates XXV, XXVII, and XXXIV.

The ground plan or outline of the planting should show prominent points and deep bays; the extent of one's grounds can be greatly increased by the appearance of distance made by a plantation bay. In planning and estimating the number of plants to be used, the determining thought should be whether the planting is to be done for immediate or ultimate effect. If for immediate effect, the number used will be greater than for ultimate effect. The plants when full grown need plenty of room, but if planted when small to allow for the required space there will be large spaces between the shrubs that will need to be kept in grass and mowed or filled with some flowering perennials that will cover the bare ground during the period of growth.

In grouping to conceal any objectionable object, the choice of plants should be made of the kinds that are evergreen, or of a very twiggy nature. If loose growing, they form no barrier to the vision in winter.

Fall and winter effects can also be secured by choosing the kinds that are known to color well in the fall and retain the berries all winter, such as the Japan barberry.

The use of evergreen trees and shrubs is desirable for screening purposes, for wind breaks, for hedges, for permanent winter effects, or for backgrounds for showy plants. Unfortunately, the list of evergreen plants which are perfectly hardy in the northern part of this country is very limited, yet such as we have are worthy of cultivation. The liability of death from a severe winter or from the alternate thawing and freezing in the early spring makes the list very small. Remarkably fine effects can be obtained by the use of broad leaved evergreens such as rhododendron and mountain laurel. It is also a safe rule to use native evergreens such as the white pine or hemlock. See Plates XXVII and XXVIII.



PLATE XXVII. Natural style, a glimpse through hemlocks on the margin of a small estate gives it a sense of great extent.



PLATE XXVIII. Natural style of development. Path skirts herbaceous perennials and shrubbery massed without architectural adornment, white pines in background.

CHAPTER IX.

You may be on land, yet not in a garden.
A noble plant suits not with a stubborn ground.
The charges of building and making of gardens are unknown.
Although it rains, throw not away the watering pot.
Fear keeps the garden better than the gardener.
A garden must be looked unto and dressed, as a body. — GEORGE HERBERT.

THERE is no more critical time in the life of well chosen plants than at the time of planting or transplanting. Upon this rests the success or failure of the shrubs and trees used to adorn the home grounds. Of course, there must be subsequent care.

There are several sources from which the plants may be secured. They may be dug from the fields where they are growing wild, they may be raised from seed, they may be raised from cuttings, or by purchase from a nursery. For the ordinary, small suburban home the latter method is the best and quickest in producing the desired results.

Better success is obtained if the nursery grown plants have been moved several times in the nursery as they have then formed a good mass of roots and will not feel the shock of transplanting or show the effects that native dug plants do. Use small plants, especially in the evergreen class. They usually do better and more lasting results are obtained than by securing larger ones. It is not only necessary to make a plant live but to make it grow to have satisfaction.

Plants ordered from the nurseries are usually dug and packed with wet moss or other damp wrappings to keep the roots moist during transportation. As soon as the plants are received they should be unpacked, and if they cannot be

planted out immediately they should be "heeled in," i.e., the roots placed in a trench and covered with moist earth.

Care should be taken to keep the earth moist until the plants can be set out in the permanent position. If the plants are kept in the original wrapping the roots should be kept wet.

To plant a tree and have it thrive needs only thorough work and proper care. The tree hole or pit should be dug broad enough to take the roots of the tree spread out and deep enough to give sufficient soil for the new roots to grow. From 5 to 10 feet in diameter and 3 to 4 feet in depth, according to the size of tree and soil conditions, is none too little.

At the bottom of the pit stir in a bushel of well rotted manure and mix with good soil. Then set the tree or shrub a little lower than it was in the nursery, scatter the earth about the roots and firmly tread so that no air spaces remain. If the weather is dry it is a good plan to water the roots when planting. Watering also helps to settle the earth about the roots. A mulching or covering of manure, straw, or leaves, will prevent the ground drying out and thus save the plants from dying. Mulching is especially good for fall planting.

Stake the tree, if in a windy place, to a stout pole. Use a piece of rubber hose or burlap for a strap to hold the tree to the pole and avoid chafing.

The planting bed should be made two feet in depth of good topsoil, and if this quantity does not exist the subsoil should be removed and good topsoil substituted. The soil should have well rotted manure mixed with it before planting the shrubs.

It is a good rule to prune the tops of trees and shrubs to equalize the loss of roots caused by moving. This may not be so ornamental when first set out, but the plant soon regains new, vigorous growth which repays for the loss of the branches. After the trees and shrubs have become established they need but little care.



PLATE XXIX. Appearance of house before planting.



PLATE XXX. Appearance of house after planting. Note the softening of the architecture uniting the house to the ground.

Should the shrubs grow too rank, or if it appears necessary to prune, the best time is after the plants have bloomed; if before the plants have bloomed, all the flower buds are sacrificed. For instance, forsythia, spireas, honeysuckles, etc., bloom early in the summer. They should be pruned after blooming so the buds will set for the next year's growth. Later blooming plants like altheas and hydrangeas should be pruned in the winter during the months of January and February. Deciduous hedges may be pruned in the spring or after the plants have flowered. Evergreen hedges are best pruned in May before the beginning of the new growth.

To prune old trees cut the limbs close to the tree. Do not leave a stub, as it will decay. Paint the wound with coal tar or paint. To remove large limbs make the first cut some distance from the trunk of the tree and cut from below, then make a cut from above and the limb will fall, leaving a stub. Then cut the stub close to the trunk of the tree. This method avoids stripping the bark all down the sides of the tree. By this method the scar will heal very rapidly by the bark growing over the wound. There is a practice or theory that all shrubs must be pruned up from the bottom and have the top "shingled." This is a very bad plan, so avoid doing it. Let them alone, let them grow naturally, for thus is their full beauty secured. The only care needed in shrubbery beds is to remove the weeds, loosen the earth about the roots, fertilize when necessary, see that the plants do not dry out and occasionally cut out the dead wood.

What is the best time to plant? is often asked.

Spring is nature's time for awakening, then all the dormant forces are active and plants set out continue to grow. Spring is therefore the best time. Fall planting, however, is equally successful for a large number of plants, especially if they are set out early enough to allow the plants to get established before frost. The fall allows a longer time in which to work with the added advantage of being free for the usual spring

rush. About October 15th is the time to begin planting, varying with the season in different localities.

The time to plant evergreens is in April and May before the new growth begins or in August and early September after the growth has ceased.

Evergreens as a rule should be planted in good soil well drained. On no account should the roots be allowed to dry out at the time of planting or later the plant will gradually grow brown or die.

When the ground is ready unwrap the plant and set into the ground immediately, press the soil about the roots, and water thoroughly. Be sure the roots are covered after watering. Do not let manure come in contact with the roots, and cut off any marred or broken roots. After planting, a heavy mulching of straw, hay, or leaves will prevent drying out and be an aid to success. Hedges whether of evergreens or deciduous plants are often better than a fence for marking the boundary of the property or along the street front. They are also useful to inclose a laundry yard, flower or vegetable garden.

In planting a hedge be sure of good soil, then dig a trench about 2 feet wide and 18 inches to 2 feet in depth. At the bottom of the trench spread a layer of well rotted manure and mix well with the soil. Then set the plants in a straight line at the distance decided upon, 12 inches or 18 inches apart.

To double the number of plants in the hedge in setting them out greatly helps the effect. Alternate the plants and space about 18 inches apart in the rows. It is a good plan to settle the earth about the roots of the plant by giving them a good watering and then fill in the hollows with additional soil and water thoroughly. It is a good rule to mulch. Set the plants a little lower than in the nursery to avoid gaps appearing at the base. Prune the plants in and endeavor to get a good bushy growth near the ground.

In pruning the hedge, the shape adopted should be one that will not shade the lower portion of the plants. A rectangular

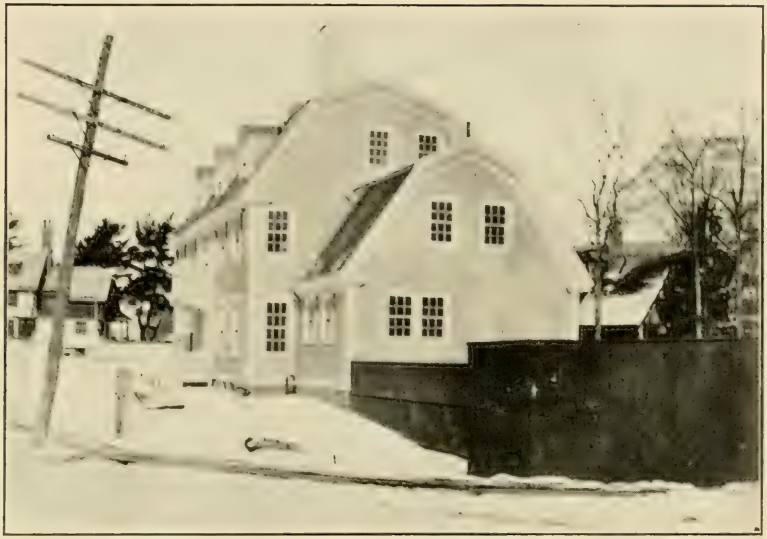


PLATE XXXI. Appearance of house and grounds before treatment.



PLATE XXXII. Appearance of house and grounds after study and development.

form is good or a rounding form at the top. Hybrid roses need rich soil, an abundance of sun, close spring pruning, and close inspection to detect insect pests. Should insects infest immediate spraying is the remedy. The best time to prune is in March. Cut out all the second year growth, one half the first year growth, and cut the weak canes severely. During the growing season it is a good plan to keep the soil stirred about the roots. The use of cow manure water at the time of blooming greatly improves the size and number of the flowers. Roses are great feeders. In the use of vines, choose for the purpose they are to serve, whether for shade, fruit, or flowers.

Give the vines good depth of soil and make a large pit. Many failures are due to planting vines against the house in but a few inches of good soil which has gravel and stones underneath. Vines, like other plants, need good soil and good manure. See Plates XXIV and XXXVII.

The revival of the old fashioned flowers, the hardy herbaceous perennials, is bringing into many a home the pleasures that were enjoyed by the people of colonial days. To be sure, the art of using the home simples such as catnip, sage, and wormwood, has passed. To-day the old fashioned plants are grown for their flowers. See Plates VI, XIX, XXII, XXVIII, XXXV, XXXVI.

The great advantage of using perennials is their permanent character. Once established there is no need to sow or replant every spring, as in the case with annuals or greenhouse plants, and there will be a constant yield of flowers for cutting.

Perennials are good in an inclosed flower garden, and on the edge of a lawn in the front of a shrubbery border. One great advantage in the use of perennials is that during the latter part of the summer they supply flowers when other plants are out of bloom. Shrubs flower early, and except for these, the latter part of August would be void of bloom. The home builder by choosing a few sure growing varieties, will avoid disappointment from trying many experimental kinds on

account of the soil conditions or aspects not being perfect. If trees are near the flower bed, the shade may cause trouble or the roots of the tree may sap the soil of all nourishment unless a liberal supply of manure is added each year. In planning, choose and arrange the plants so that there will be a succession of bloom.

There is often difficulty in arranging the color scheme to avoid the clash of inharmonious colors. The free use of white flowering kinds is a great help in reconciling the warring colors. In natural planting, every effort should be made to avoid straight lines or rows so as to obviate the stiff formal effect.

In planting, allow them room enough to grow, and do not put the taller growing plants in front of the lower growing varieties. Start with the taller growing plants and then edge down to the lower growing kinds, but not in ranks or tiers. Try to get variety in outline and sky line.

Herbaceous perennials need a good, deep, rich soil. It is well to make the bed 2 feet in depth and add a quantity of good well rotted stable or cow manure. There is little care needed except to occasionally remove the weeds and in the fall give a coating of manure for winter protection. There are a few kinds of perennials that are better moved and divided once every three or four years, but, as a rule, the plants should be left undisturbed.

In addition to herbaceous perennials a few bulbs such as scilla, hyacinth, and crocus planted along the edges of the border and in the grass give an early promise of spring. Care must be taken, however, not to mow the grass in the spring until the bulbs have ripened and sets formed for the next year.

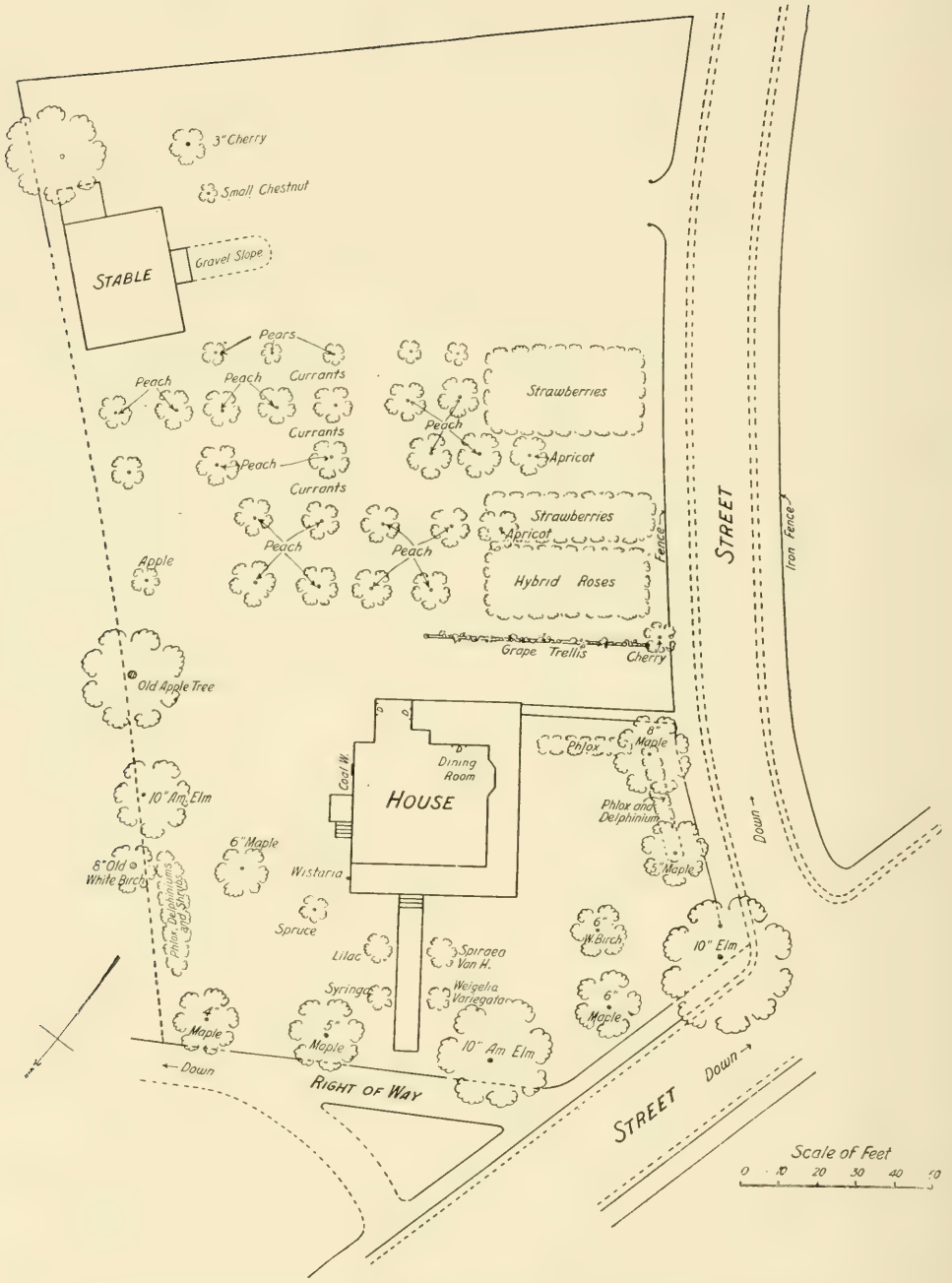
"How long before the shrubs will be full grown?" That depends upon the particular plant. As a rule, the first year the plants are set out they become established and get a new root system, the second year there is a fair growth of the branches, the third year the plants ought to show flowers and be in good condition.



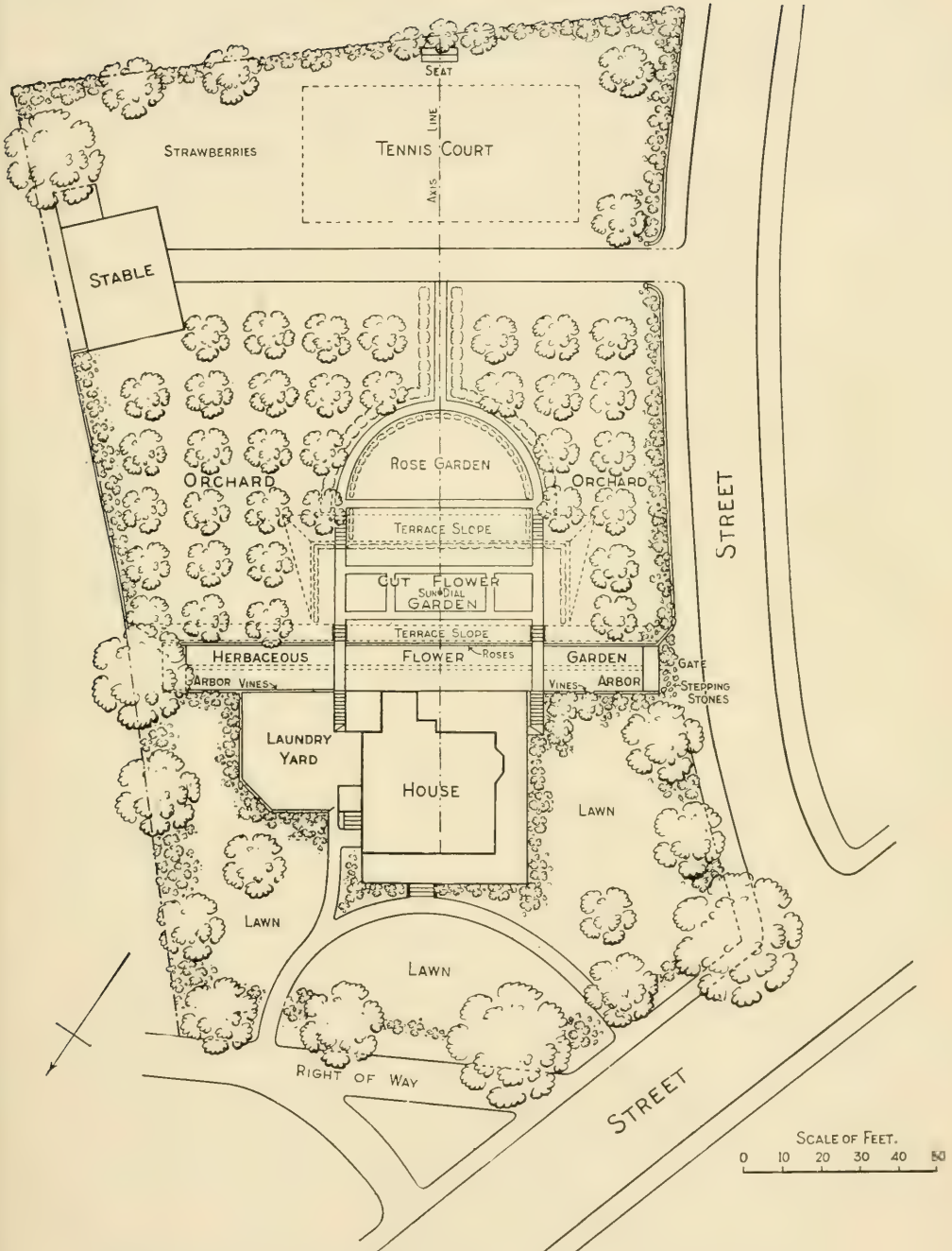
PLATE XXXIII. Appearance of house and grounds open to street after grading and before planting.



PLATE XXXIV. Appearance of house after grading and planting have been completed. Note varying height of border plantation.



PLAN VII. Tape measured survey of Estate "B," showing the usual scattered unstudied treatment.



Plan VIII. Preliminary plan for Estate "B," shrubs and flowers moved to make a good design.

CHAPTER X.

Trees are God's Architecture.—ANONYMOUS.

WHAT kind of a tree shall I plant is often the first question asked by the improver of his home grounds. If trees native to the locality are suggested, immediately the objection is raised that they are so commonplace. Some tree or plant that is a native of another land and clime is demanded, with the usual result of a partial or complete failure. Every section of the country has its trees and shrubbery that are indigenous to the soil, as well as many that have been naturalized by careful growing by skilled nurserymen or owners of large estates who are lovers of trees. For the ordinary man to experiment with untried trees means, often failure or disappointment, as well as unnecessary expense. Emphasis can again be placed upon the design rather than upon the individua plants that go to make the landscape picture. It needs only the trained eye to recognize effects and to appreciate the landscape value in the native kinds of trees in making the picture. Nearly all regions have trees in form that are round headed, spiry shaped, and columnar, drooping and weeping, as well as other general forms and shapes, that can be used to secure similar landscape effects — such as the yew in England and the cedar in America.

For permanent screens, wind breaks, and charming winter effects, the evergreen trees should be used. If summer shade is desired, with an opening to the sun, and an airy effect in winter, the deciduous or leaf shedding trees should be chosen. The varying colors of the foliage as the season advances should also be borne in mind. Specimen trees must be planted free from encroaching trees and shrubbery to secure the full value

of their nature and habit. They should be placed near a mass of foliage and not in the center of a lawn. This method of treatment is possible in large estates: smaller suburban grounds can grow but few trees as individuals.

In choosing trees for the home grounds they must be selected with care as to the exposure, ultimate size, rapidity of growth, length of life, adaptability to the soil, as well as to the general landscape effect. As a pattern for a mixed plantation of trees the native woods should be studied, with their composition of various kinds of trees that have been planted by nature's method of the winds, the birds and the animals carrying seeds and nuts, storing them for future use. We have but to open our eyes and look at the landscape as the seasons advance, and, as the sunlight and shadow pass across the woods, we may see many pictures, that if painted by an artist in oil on canvas, we should be ready to criticise and discredit.

Some of the reasons why trees die after transplanting are:—

Because they have lost too many of their roots;

Because after they were dug from the ground or unwrapped from the nursery package they were too much exposed to the sun and dry air;

Because the soil was not packed tightly around the roots when they were planted, they rock back and forth;

Because the soil was too wet where they were planted, no drainage in the tree hole. Sometimes the soil is made very wet and is of such a kind that when it dries it bakes and keeps out the air;

Because the soil in which the tree was planted dried out too quickly.

Trees have been described as of rapid and slow growth. The following list will give the average size that a three-inch sapling will develop in twenty years under favorable conditions. The height to which each kind of tree attains in the same period will be in the usual proportion to the diameter. The height to which the trees attain when fully grown, with

all the conditions of soil, climate, and exposure favorable, is shown in the last column.

Common Name.	Size After 20 Years.	Average Height when Full Grown.
	Diameter, In.	Feet.
White or silver maple	21	100 to 120
American elm	19	100 to 120
Sycamore (buttonwood or plane tree)	18	80 to 100
Tulip tree	18	80 to 150
Linden or basswood	17	60 to 80
Hardy catalpa	16	80 to 100
Red maple	16	100 to 120
Ailanthus or tree of Heaven	16	50 to 60
Magnolia or cucumber tree	15	80 to 90
Chestnut	14	80 to 100
Sugar, rock or hard maple	13	100 to 120
Horse chestnut	13	60 to 80
Honey locust	13	70 to 140
Red oak	13	80 to 150
Pin oak	13	80 to 120
Scarlet oak	13	70 to 80
White ash	12	60 to 80
White oak	11	80 to 100

Evergreen Trees.

Arborvitæ—in various forms and varieties.
Fir—Balsam, Silver, Nordman's, etc.
Hemlock—Tsuga canadensis.
Juniper—Red Cedar and other varieties.
Pine—Austrian, Scotch, White, etc.
Retinospora—Thread-branched, plume-like, etc.
Spruce—Colorado, Norway, White, etc.

Many other varieties of evergreen trees can be found in the various parts of the great country of the United States, with its varying climate. To obtain such lists a visit to a leading nursery, an arboretum, or the services of a Landscape Architect will be found helpful to the seeker after beautiful results in the Home Grounds.

CHAPTER XI.

It is in Society as in nature—not the useful but the ornamental that strikes the imagination.—
Sir Humphrey Davy.

BEAUTIFUL grounds are admired by everyone. One such in a neighborhood is distinctive and acts as an incentive and pattern for the adjoining properties. The artistic finish is often secured by planting flowering shrubs, especially when they are used to hide disagreeable objects, define the boundaries of property, and to furnish an abundance of flowers throughout the summer. As the seasons advance the shrubs will present a varied effect, especially if well chosen and arranged according to height, color of flowers and foliage, and time of flowering. Even in winter, bright, showy berries and highly colored stems add a brightness that can be secured in no other way. The usual method recommended for planting shrubs is in groups and masses, with a few individuals on the margins. To plant single shrubs all over a lawn spoils the open effect and reduces the apparent extent of the grounds. There are shrubs native to the localities that are well worth cultivating. Other varieties have been cultivated by skilful gardeners and importers to be equally hardy. A frequent visit should be made to an arboretum or a reliable nursery as the season advances to watch the character of the plants as they grow. A quicker way would be to secure the services of a competent adviser to tell the best kinds of trees, shrubs, and flowers to use in the improvement. Avoid the too-free use of striking or startling plants if harmony is desired, such hydrangea paniculata, the variegated leaved shrubs, and weird grafted horticultural

variety of large shrubs and small trees. There are several kinds of shrubs that can be used to secure similar effects as to form and mass effect so that, if one variety is not available, another can be substituted. The true way to secure a beautiful garden and grounds is to plant what soil, situation and climate allow, and by that method each garden will present its own distinctive individual charm. There are shrubs that flower one after the other from April to September, which, if arranged properly, will give flowers all summer. The following is a list of a few shrubs that are commonly found in nurseries. Many more varieties will be found in the nurseries and arboretums, hardy and desirable in the locality in which the improvements are to be made, whether in the Northern States, the Southern States, the Middle States, or in California. The botanical name, the common name, the color of flower and, the letters *D* (dwarf), *S* (small), *M* (medium), *L* (large), are given as a guide to the size of the shrubs.

	March.		
Magnolia stellata	Hall's magnolia	White	L
Daphne mezereum	Common mezereum	Red	D
	April.		
Cornus Mas	Cornelian cherry	Yellow	L
Forsythia Fortuneii	Golden bell	Yellow	L
Spirea Thunbergii	Thunberg's spirea	White	S
	May.		
Berberis Thunbergii	Japanese barberry	Yellow	S
Cydonia Japonica	Japanese quince	Scarlet	M
Deutzia gracillis	Slender deutzia	White	S
Exochorda grandiflora	Pearl bush	White	L
Forsythia viridissima	Golden bell	Yellow	M
Kerria Japonica	Globe flower	Yellow	M
Ribes aureum	Missouri currant	Yellow	M
Syringia vulgaris	Common lilac	Purple	L
Viburnum plicatum	Snowball	White	L

June.

Berberis vulgaris	Common barberry	Yellow	S
Chionanthus virginica	White fringe	White	L
Deutzia crenata	Deutzia	Pinkish	L
Deutzia Lemoinei	Lemoine deutzia	White	S
Ligustrum medium	Privet	White	M
Lonicera Tatarica	Bush honeysuckle	Pink	L
Philadelphus coronarius	Mock orange	White	L
Roses in variety	Roses	All colors	
Spirea Van Houteii	Van Houtte's spirea	White	M

July.

Cornus paniculata	Gray dogwood	White	L
Diervilla candida	White wigelea	White	M
Diervilla Eva Rathke	Eva Rathke wigelia	Crimson	M
Elæagnus longipes	Japan oleaster	Yellow	L
Ligustrum Ibota	Japan privet	White	L
Lonicera Morroweii	Bush honeysuckle	Yellow	M
Stephanandra flexuosa	Stephanandra	White	S
Symphoricarpos racemosus	Snowberry	Pink	S

August.

Hibiscus in variety	Rose of Sharon	All colors	M
Hypericum aureum	St. John's wort	Yellow	D
Spirea var. Anthony Waterer	Anthony Waterer spirea	Pink	D

September.

Caryopteris Mastacanthus	Blue spirea	Lavender	D
Baccharis halmifolia	Groundsel tree	White	L
Desmodium penduliflorum	Sweet pea shrub	Violet	D
Hamamelis Virginiana	Witch hazel	Yellow	L
Hibiscus in variety	Rose of Sharon	All colors	L
Hydrangea paniculata var. grandiflora	Hydrangea	Pinkish	L

Winter Berried Shrubs.

Berberis Thunbergii	Japan barberry
Berberis vulgaris	Common barberry
Viburnum Opulus	High bush cranberry
Rosa multiflora	Many flowered rose
Rosa rugosa	Japanese rose

A Few Desirable Evergreen Shrubs.

Andromeda floribunda	Lily of the valley bush
Azalea amoena	Azalea
Berberis aquifolium	Ash berry
Buxus in variety	Box—various kinds
Calluna in variety	Heather
Daphne cneorum	Daphne
Euonymus radicans in var	Evergreen creeper
Ilex in variety	Holly
Kalmia latifolia	Mountain laurel
Rhododendrons in variety	Rhododendrons

CHAPTER XII.

> And from my heart poured out the feeling of love; it poured forth a wild longing into the broad night. The flowers in the garden beneath my window breathed a strong perfume.—HENRI HEINE.

THE desire to have an abundance of flowers is strong in the home lover's heart. The annual outlay for greenhouse bedding plants deters the average man from much display. There is a better way coming into vogue now by the revival of the old-fashioned flowers of the "Grandmother's Garden." These are called perennials, or hardy herbaceous perennials, because their tops die to the ground, but their roots live. These hardy plants begin to bloom from earliest spring, and continue until November. They are of all colors and varieties. The best time to plant is in early fall or very early spring.

The soil should be two feet in depth and of good vegetable garden quality, with enough retentive compost so that the plants will not dry out in hot weather. After planting, the beds must be dressed with manure each year to have good plants and flowers. Starvation of soil means dearth of bloom. Many kinds of herbaceous plants should be lifted every three or four years and divided, because the crown on which the flowers grow has become run out. Many of the plants grow from the center outward and the bloom will soon become scattered, spindling and unattractive. Another reason for dividing is that the number of plants will be increased, giving an opportunity for exchange with neighbors, or to plant in other parts of the grounds. There are varieties of plants

that are indigenous to the soil, called native, that may be dug up and replanted in the garden. Oftentimes it requires skill and patience to make them grow, for they pine away and die out of their native habitat. Climatic and soil influences curtail the list of plants that might be applicable to a whole country. For safety, only plants that are known to be hardy should be selected. In the following list are a few names of desirable kinds that may be found in nurseries: the botanical name, the common name, the color and the months of bloom are given:

Achillea variety, the pearl	Yarrow	Jy to S	White
Aconitum napelus	Monkshood	Jy to S	Blue
Althea	Hollyhock	Ju to S	All colors
Alyssum saxatile compactum	Golddust	Ap to Ju	Yellow
Anemone in variety *	Wind flower	Ap to S	Various
Aquelegia in variety	Columbine	Ap & S	All colors
Arabis albida	Rock cress	Ap & My	White
Aster in variety	Hardy asters	My to S	All colors
Campanula in variety	Bluebells	Ju to S	All colors
Chrysanthemums in variety and hybrids		Ju to S	All colors
Coreopsis grandiflora	Tickseed	Ju to S	Yellow
Delphinium in variety and hybrids	Larkspur	Ju to S	All colors
Dianthus in variety	Pink	Ju to S	All colors
Dicentra spectablis	Bleeding heart	Ap to Ju	Crimson
Digitalis in variety	Fox glove	Ju to Jy	All colors
Funkia subcordata	Plantain lily	Jy to S	White
Hemerocallis in variety	Day lily	Ju to Au	Yellow
Iberis sempervirens	Candy tuft	My to Ju	White
Iris Germanica in variety	German iris	Ju	All colors
Iris Kaempferi in variety	Japanese iris	Ju	All colors
Lilium in variety	Lily	Ju to Oct	All colors
Lobelia cardinallis	Cardinal flower	Au to S	Scarlet
Lupinus polyphyllus	Lupine	Ju & Jy	Blue
Monarda didyma	Bee balm	Ju to S	Red
Myosotis palustris	Forget-me-not	My & Ju	Blue
Paonies in variety	Peony	My & Ju	All colors
Papaver nudicaule	Iceland poppies	My to Oct	Yellow

* In variety means that there are several kinds of the same plant that have a different color of flower, or some change in foliage that makes it desirable under certain conditions to use.

Phlox subulata	Moss pink	Ap to My	Pink
Phlox tall growing	Phlox	Ju to S	All colors
Pyrethrum in variety	Feverfew	Ju to S	Various colors
Rudbeckia lacinata	Golden glow	Au & S	Yellow
Trollius Europaeus	Globe flower	My to Au	Yellow
Veronica in variety	Speedwell	Ju & Jy	White & blue
Viola in variety	Violets	Ap & My	White & blue

A suggestive list of a few bulbs and perennials that bloom in the different months:

March.

Snowdrops	White
Crocusus	Various
Scillas	Various

April.

Tulips	Various
Jonquils	Yellow
Pansies (set out)	Various

May.

Moss pink	White, pink
Bleeding heart	Pink
Clove pinks	White, pink

June.

The Month of Flowers.

Forget-me-not	Blue
Larkspur	Blue, white, etc.
German iris	Various

July.

Hollyhocks	Various
Lillies	Various
Phlox hardy	Various

August.

Mallow	White, pink
Golden glow	Yellow
Speedwell	Blue

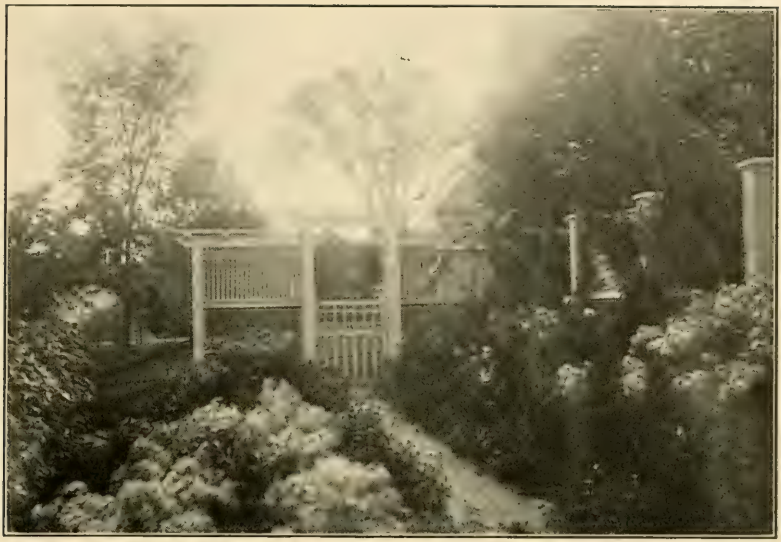


PLATE XXXV. Terrace garden, herbaceous perennials, brick walk.

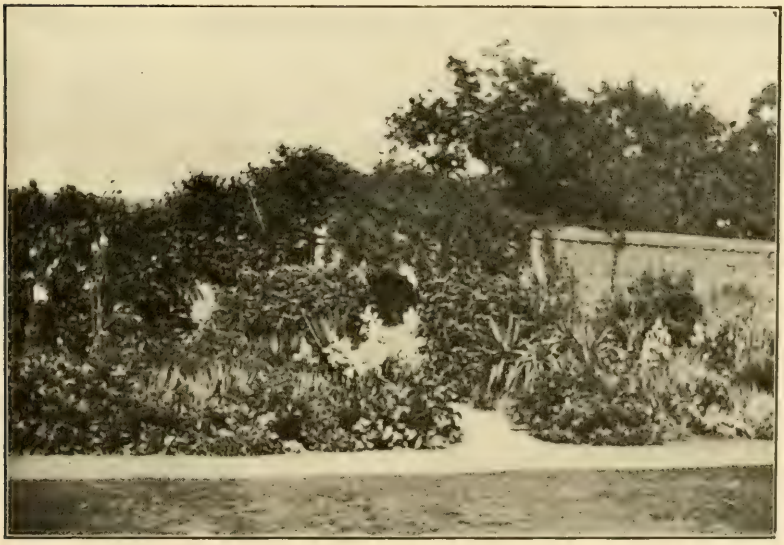


PLATE XXXVI. Herbaceous flower garden. Note the general mass effect.

September.

Hardy asters	Various
Anemone japonica	White, pink
Larkspur, late blooming	Various

October.

Cosmos	Red, white, pink
Chrysanthemum	Various

Note. Other lists can be made according to the tastes and desires of the lover of flowers. The same principle holds good in whatever country the improvements are made.

The names of a few shrubs and small trees that bloom in different months:

Common Name.	Color.	Size.
March.		
Hall's magnolia	White	L
April.		
Golden bell	Yellow	L
Thunberg's spirea	White	S
May.		
Japanese barberry	Yellow	S
Common lilac	Purple	L
Snowball	White	L
June.		
Bush honeysuckle	Pink	L
Roses	All colors	
July.		
Wigelia	Various	M
Japan privet	White	L
Bush honeysuckle	Yellow	M

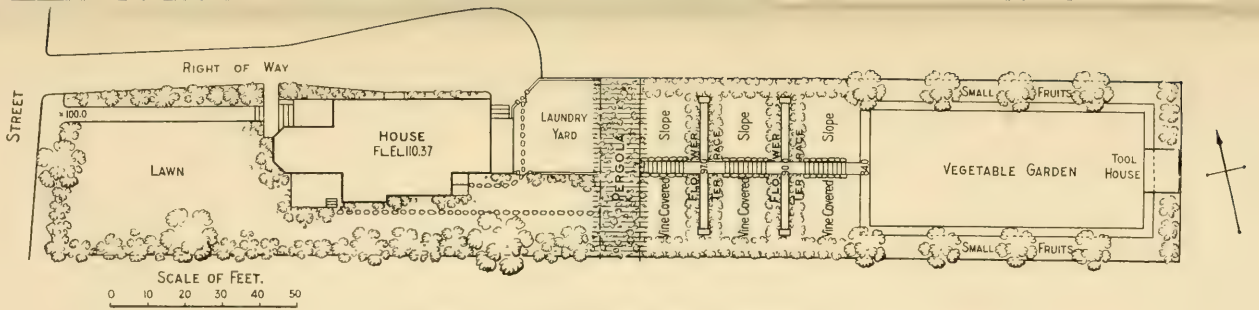
August.

Common Name.	Color.	Size.
Rose of Sharon	All	M
Anthony Waterer spirea	Pink	D
St. John's Wort	Yellow	D

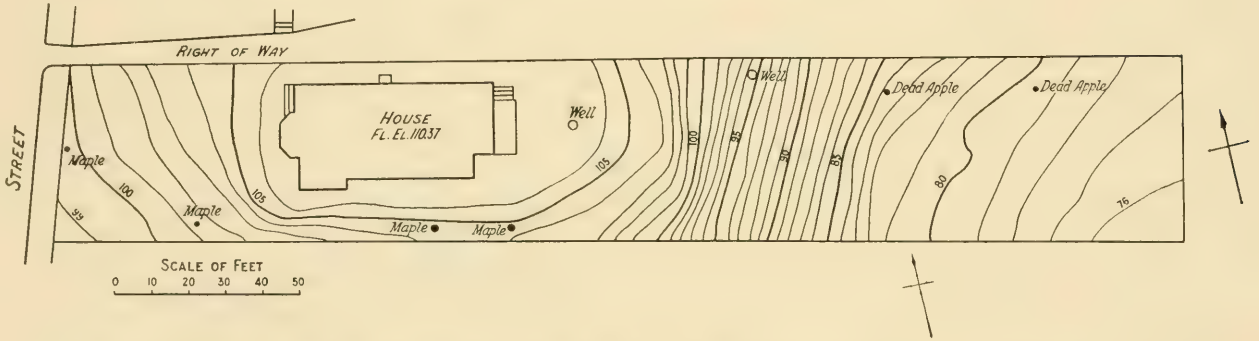
September.

Hydrangea	Pinkish	L
Sweet pea shrub	Violet	D
Witch hazel	Yellow	L

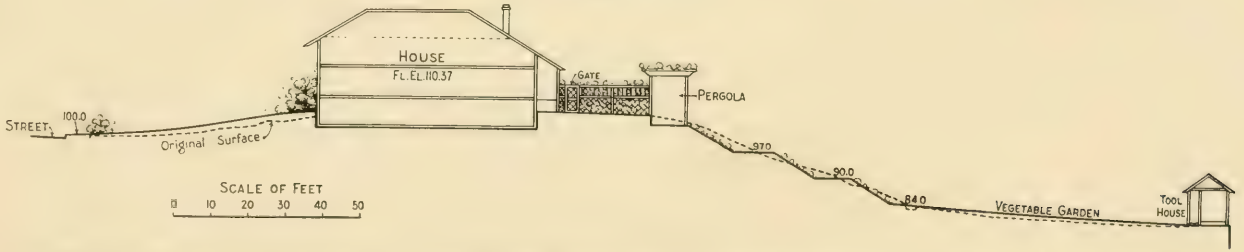
Note. L = large; M = medium; S = small; D = dwarf.



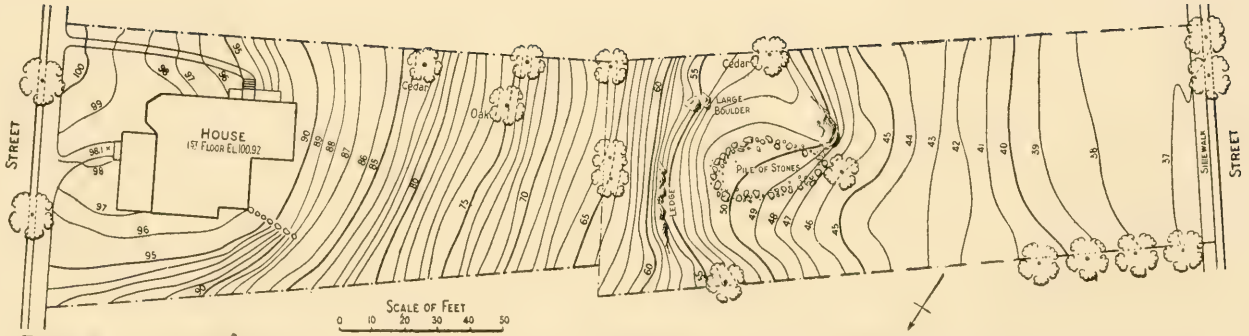
PLAN IX. Preliminary plan for Estate "C."



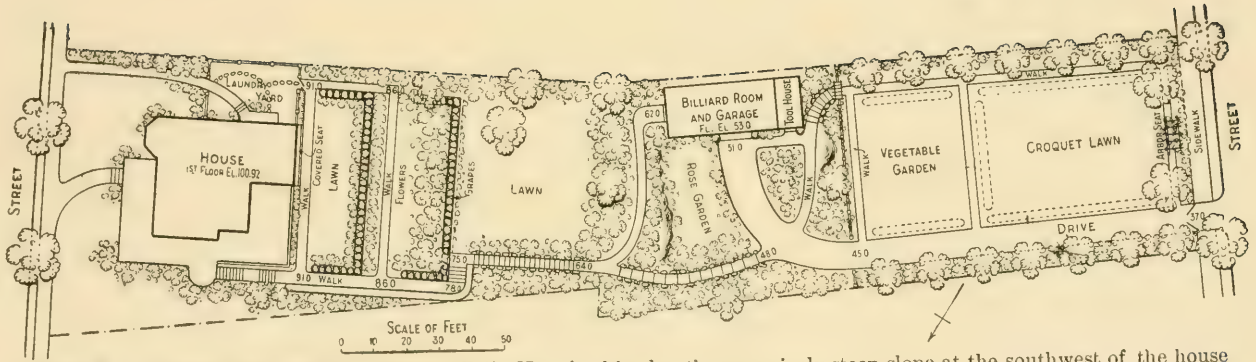
PLAN X. Topographical map for Estate "C." House lot is 40 feet wide on street front and 300 feet deep, located on a steep hillside.



PLAN XI. Cross section of Estate "C." Note "ogee" slope, also the terraces made to fit the existing slope as shown by dotted lines.



PLAN XII. Topographical map of Estate "D." Note the difference in elevation between the two streets (63 feet). The house had, before treatment of the grounds, the sliding off the hill appearance. There were but few existing trees, many boulders, and outcropping ledge; lot is 85 feet by 300 feet. See opposite page for development.



PLAN XIII. Preliminary plan for Estate "D." Note in this plan the excessively steep slope at the southwest of the house was overcome by walls making two terraces, and then by steps, made to fit the slope, the lower levels of lawn, rose garden, garage, vegetable garden, and croquet lawn were reached.



PLATE XXXVII. Bird bath walk from flower garden. Taken in June after spring planting.

CHAPTER XIII.

> You have heard it said (and I believe there is more than fancy in that saying, but let it pass for a fanciful one) that flowers only flourish in the garden of some one who loves them.—
> —John Ruskin.

FLOWERS—a bountiful bloom—is the desire of many lovers of the beautiful, and not the fruit which is the product that comes after the flowers. Nature has many ways of perpetuating its kind and the flower of the plant is one method with the rich color, the delicate fragrance, and the sweet nectar as its attraction. Birds, bees, animals, as well as man are attracted, and assist in the fertilization and distribution of the seeds and plants. There is a reason for all these things that can be found out by study; the main one is fruit, seed and the continuing life. Man, on account of his love for the beautiful, has emphasized the flower part of the plant to such an extent that the fruit is is overlooked except where there is a commercial value. Nature acts otherwise and knows no law of dollars and cents, only that the next generation of plants may be given life after the death of itself.

Thus we have a wide range of flowers from which to choose that have been gathered from all quarters of the globe. Navigators, botanists, travellers, and scientists have been attracted by the flowers and have gathered the best to send back to their home land. These gleanings have been carefully propagated and acclimatized by skilful and patient gardeners with the result that to-day many flowers that are common to us are

really natives of a far-distant land. If one had time to study the life history of each flower it could be traced to some field where it grew wild without the protecting care of man,

We naturally divide the flowers into divisions according to their nature of growth such as hardy and half-hardy, annuals, and so forth. Annuals are plants that grow from seed, flower, produce the seed and die the same year, thus fulfilling the law of nature for reproduction. Plants with this habit produce quick results in any garden and are depended upon in special difficult situations, in the flower garden, in the perennial garden, along shrubbery beds and many other delightful uses. There are a great variety of annuals in almost all colors, of many sizes and height: some are used for edging of paths, others for making flower beds, while others are useful to form screens to hide some disagreeable object. Some annuals are climbers and are used to cover arbors and serve as a screen.

To raise annuals successfully it may be necessary to start some kinds of seeds in boxes, pots or other receptacles to enable the plants to reach their full maturity in one season, this of course varies according to the part of the country in which the home beautifier lives. To start plants indoors take some boxes or flats, as they are called, and fill with a mixture of equal parts of light soil, leaf mould, and sand. To secure good drainage the bottom of the box should have holes bored through and be covered with broken flower-pot pieces, stones, or other coarse material. After filling with the soil, water the flats for a day or two, so that the earth is firmly set. Then lightly stir the soil and scatter the seed evenly over the surface but not too thickly, then cover the seeds varying in depth according to the kind of seeds. The depth to plant the seed is usually marked upon the packages by the seedsmen as the plants vary in their treatment. When the seed is sown keep the flat in a sunny window near the glass in a temperature varying from 60 to 70 degrees. Water should be given the planting carefully when required, so as not to wash out the



PLATE XXXVIII. Flower garden on grounds of $1\frac{1}{2}$ acres in extent. Taken in the time of the phlox bloom.

seeds. Some cover the planted seeds with a piece of newspaper until after the seeds have started and then it is removed. Do not smother the small seedlings. After the seedlings have become strong enough to transplant, prick them off and place in another flat or in pots as the case may be, to be grown until they are strong enough and the weather right to set them out in the permanent place that has already been prepared. For good results with annuals usually a sunny spot must be selected, have good deep soil and fertilize with good well-rotted barnyard manure or cow manure. The best seed should be secured that the seedsmen offer to obtain good results. With this preparation and the same spirit that is displayed in the quotation at the head of this chapter the plant lover may look for good results. The following is a list of a few of the desirable kinds:

Asters, Ageratums, Sweet alyssum, Antirrhinum (snapdragon), Balsam, Calendula (pot marigold), Candytuft, Campanula (bluebells), Celosia, (cockscomb), Centaurea (Bachelor's button), Chrysanthemum, Coreopsis (Calliopsis), Cosmos, Convolvulus (Morning glory), Cobea scandens, Delphinium (Larkspur), Datura, (Trumpet flower), Dianthus (Annual pinks), Digitalis (Foxglove), Eschscholtzia (California poppy), Gourds, Gypsophylla (Baby's breath), Hibiscus (Mallow), Hollyhock, Humulus (Hopvine), Marigold, Mignonette, Myosotis (Forget-me-not), Nasturtium, Pansy, Petunia, Phlox (Drummondi), Poppy, Portulacca, Salpiglossis, Salvia, Scabiosa (Morning bride), Stocks (Gilliflower), Sun flowers, Sweet pea, Verbena, Zinnia.

Another kind of plants that are much sought after by individuals that desire to take up a hobby are the bulbs. These have flowers of remarkable beauty in an endless variety of habit, size and color that have been gathered from all over the world. They are used in borders, hardy gardens, along shrubbery beds, naturalized in grass, planted on the margins of

ponds and are especially useful for house culture. Fall is the best time for planting. A few of the best kinds for early spring flowers are:—Scilla, Chinadoxa, Crocus, Hyacinths, Narcissus, Tulips, Lilies in various varieties and Gladioli.

Nature has been very kind in providing so many kinds of plants for almost any situation; even the vines have their place in the beautifying of the home grounds. It is strange how much desire there is to have the kinds that will not grow in the climate that is the environment of the home lover. The same holds true in vines as in other plants, that there are kinds that will grow well in the various parts of the country that will not thrive in another section. Take, for instance, the English Ivy so much envied in the extreme northern parts and grown so well in the middle section, also the climbing Hydrangea, a beautiful plant.

The same treatment is given the vines that is described for shrubs. When planting near the house care should be taken not to place the plants so near the walls that the rain will not reach the roots on account of the extreme overhang of the eaves of the house. The following are a few of the ordinary kinds:—Actinidia arguta, Akebia, Celastrus Scandens (Bitter sweet), Clematis, Dutchman's pipe, Honeysuckle, Climbing roses, Ivy various kinds, Wistaria, Woodbine, and Euonymus radicans (Evergreen creeper).

The foregoing indicates in a general way the large field in which the suburban home lover may look for the material to make his picture; for such it is when the decoration of the grounds is attempted. Emphasis must still be laid upon the artistic arrangement of the plants and flowers to get a perfect result.



PLATE XXXIX. Terrace garden, herbaceous perennials and vines, brick-walk. The same view as Plate XXXV after three years of growth.

CHAPTER XIV

> The circumstances of gardeners, generally mean, and always moderate, may satisfy us that their great ingenuity is not commonly over recompensed. Their delightful art is practised by so many rich people for amusement, that little advantage is to be made by those who practise it for profit; because the persons who should naturally be their best customers supply themselves with all their most precious productions. — ADAM SMITH.



HE busy man often finds that he has not time to devote to the study necessary to develop the plans for the home grounds, and decides it is better to secure the services of one who knows how, or at least secure the verbal advice before beginning or spending any money doing work that will later need to be undone.

Before doing so, if the home builder is entirely ignorant of the principles that govern the art of landscape architecture, it is a good idea to secure and read some of the standard authors. As the reader goes farther into the subject he will have a growing respect for a profession that he assumed was superficial and perhaps not needed in developing his home grounds. He will find that the range of knowledge required of the landscape architect is greater than of any other profession. Besides reading the standard authors it is a good idea for the home builder to peruse regularly a good reliable home gardening publication of which there are many published. These give suggestions as to the treatment of various difficulties that arise in caring for the grounds.

Then after getting an idea or getting into the atmosphere of the landscape art the reader is in a position to appreciate what a professional landscape architect will advise.

The province of the landscape architect or designer is to advise as to the arrangement of the grounds and prepare plans for their execution. He will mould into shape the ideas of the home builder or suggest entirely new ones. He is to protect the owner from unscrupulous contractors or nurserymen so as to secure the best results at the least expense. Choose, then, a reliable, well trained man in whom can be placed explicit confidence. As his remuneration for services rendered is in the form of professional fees there should be no inducement for him to order an excessive amount of work or a larger number of plants than is needed to accomplish the effect. He should have nothing to sell — either materials or plants. His knowledge, training, experience, and above all his artistic taste, are his stock in trade. The best landscape architects very rarely advertise commercially and are known by their experience, training, and work. Avoid the free plan idea, for it is a well known fact that something for nothing is rarely given. There must be pay somewhere.

The card of the landscape architect is usually on this order and shows the scope of his work:

The undersigned offers his services to those who contemplate the subdivision or improvement of land for sale, the development or revision of large and small estates, parks, public squares, playgrounds, the surroundings of factories, hospitals, and other public institutions. He will consult with owners, architects, engineers, and others concerning the placing of buildings, laying out of drives and walks, grading of surfaces, and the treatment of old and new plantations. In general, his services are offered where the appearance of the result is worth consideration, whether in the arrangement of the land or of the objects upon it.

A preliminary visit and consultation on the ground is essential in most cases to acquaint him with the client's wishes, and with the physical and financial conditions of the case, to the end that he may suggest the most suitable method of procedure.



PLATE XL. Simple treatment of porch of ordinary house, softening the severe architectural lines. (Lot fifty feet front.)

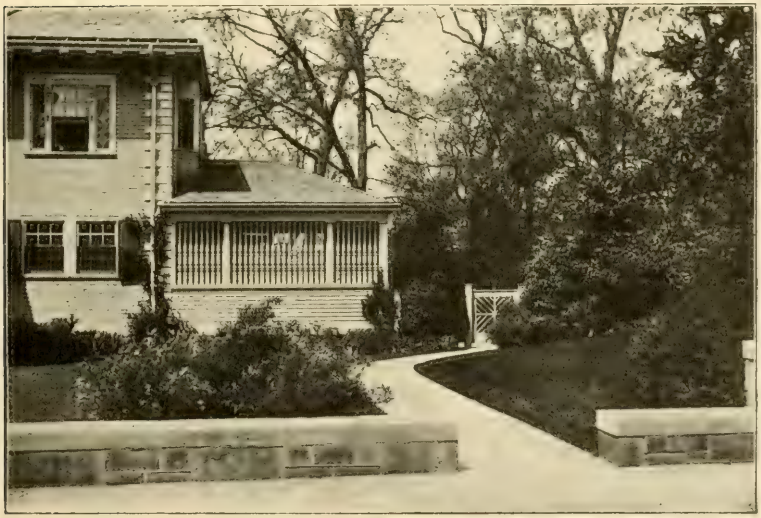


PLATE XLI. Simple entrance to kitchen porch and yard.

If a sketch or plan drawn to scale is desired a survey or topographical map is ordinarily required.

Preliminary sketches are then presented, with explanations, for discussion, and when these are approved a finished general plan follows.

The general plan can be staked out by a surveyor and carried forward by day work under a qualified superintendent, but the best results are rarely obtained without the occasional advice on the ground and more or less assistance from the designer.

If the work is to be executed under a qualified superintendent, few plans are required; but if by contract, working drawings and written specifications are necessary and such supervision as may be required.

Planting plans for both large and small areas, and in any degree of detail, are prepared when occasion requires. Order lists for plants are made from reliable nursery catalogues and the lowest prices obtained for the client's benefit.

Professional charges can be had upon application by stating the nature of the work undertaken and the advice required. If desired, a preliminary visit will be made for a fee agreed upon in advance.

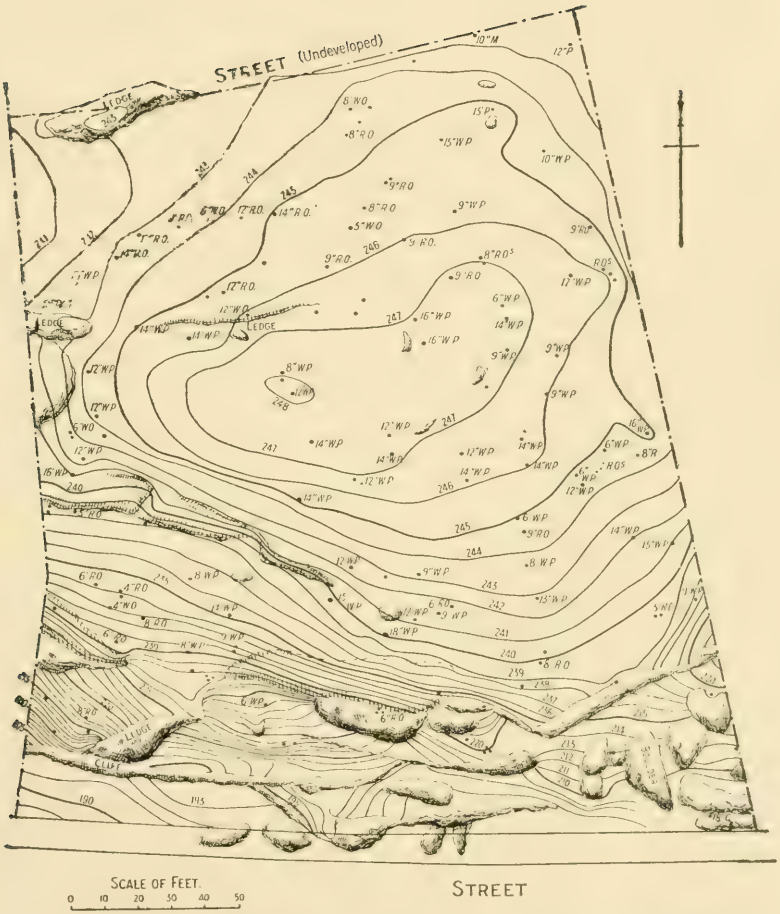
Having secured the services of the landscape architect and having adopted and carried out his plans, due respect should be accorded to the designer and not endeavor to improve on the design by planting trees or shrubs on a lawn in an inartistic setting. Many a good design has been ruined by the so-called practical ideas of the owner, even in the process of the work, thereby ruining the conception and the unity and beauty of the place. It is only after such mistakes have been made that the owner realizes that it is more of an art to design the grounds than it is to paint a picture, for one has under his control the pigments and can idealize or omit any inharmonious objects in the scene, the other must make a real picture using materials that are not always under his control.

The landscape architect in his position has more problems of revision than of original conception. Often the skilled man will take the existing shrubs and objects upon the ground and by rearranging them secure with but little expense a pleasing and artistic treatment. A beautiful parlor may be spoiled by the poor arrangement of the furniture or by using inharmonious objects; so it is with the small suburban grounds. One advantage in getting a professional man to look over one's grounds is that he will see things that are inharmonious which by constant daily observation has been blunted or removed from the perceptions.

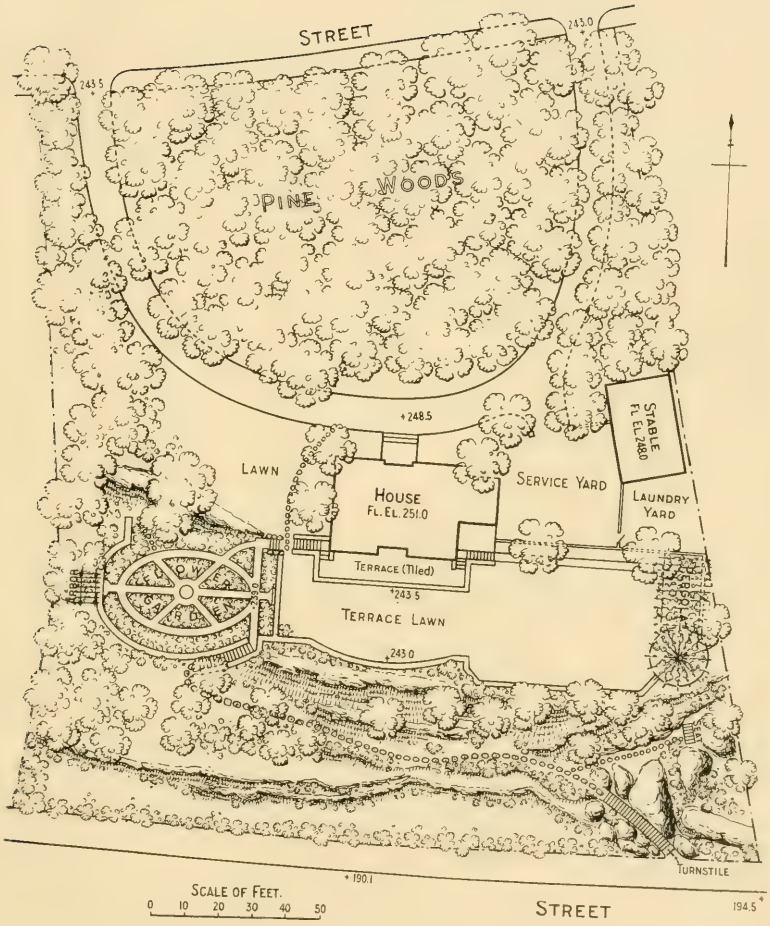
In developing there should be a liberal amount of patience used, for grass, trees, and shrubs are not subjects of man's will, they must have time to grow.

It is often a puzzle how to get or buy the plants. If a professional adviser is not employed the best way is to make out a list of the shrubs and trees desired and secure estimates from reliable nurseries. Many nurseries issue illustrated catalogues telling of the various plants, sometimes in glowing colors. However, it is a good plan to secure some of these and peruse them as a guide, but they are not to be followed blindly. They often tell of the ultimate size of the plant, the soil, and cultural requirements, the color and time of flowering, the summer and fall effect of both foliage and fruit, besides telling the varieties of plants that can be grown in the locality other than the indigenous kinds.

Thus is the beautiful in the home grounds obtained, the ideal reached by prevision, determination, good work, and patience. Never must the design, the arrangement, the desired mass effect or the general conception be lost to mind, and the use of materials be only for the development of the idea. He that would attain unto any height must strive. There is no royal road to beautiful grounds.



PLAN XIV. Topographical map of Estate "E." Note the exceedingly difficult topography of rocks, ledges, etc. Area of estate one acre. See Plan XV opposite for development.



PLAN XV. Preliminary plan for Estate "E." Note in this plan the cellar excavation will nearly build the terrace walls. Material for levelling the lawns to be brought in.

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